PRC Environmental Management, Inc
233 North Michigan Avenue
Suite 1621
Chicago, IL 60601
312-856-8700
Fax 312-938-0118

PRELIMINARY ASSESSMENT/ VISUAL SITE INSPECTION

DETREX CORPORATION
GOLD SHIELD SOLVENTS DIVISION
GRAND RAPIDS, MICHIGAN
MID 020 906 764

FINAL REPORT

Prepared for

U.S. ENVIRONMENTAL PROTECTION AGENCY
Office of Waste Programs Enforcement
Washington, DC 20460

Work Assignment No.	:	R05032
EPA Region	:	5
Site No.	:	MID 020 906 764
Date Prepared	:	January 6, 1994
Contract No.	:	68-W9-0006
PRC No.	:	309-R05032MI69
Prepared by	:	PRC Environmental Management, Inc. Stacey Durley
Contractor Project Manager	:	Shin Ahn
Telephone No.	:	(312) 856-8700
EPA Work Assignment Manager	:	Kevin Pierard
Telephone No.	:	(312) 886-4448

CONTENTS

FIGURES

TABLES

EXECUTIVE SUMMARY

PRC Environmental Management, Inc. (PRC), performed a preliminary assessment and visual site inspection (PA/VSI) to identify and assess the existence and likelihood of releases from solid waste management units (SWMU) and other areas of concern (AOC) at the Detrex Corporation Gold Shield Division (Gold Shield) facility in Grand Rapids, Michigan. This summary highlights the results of the PA/VSI and the potential for releases of hazardous wastes or hazardous constituents from SWMUs identified.

Gold Shield occupies about 0.25 acre in an industrial area of Grand Rapids, Michigan. The facility consists of a basement and a first floor. Gold Shield historically received spent solvents from various industries. Gold Shield has performed three different types of operations associated with spent solvents. From 1970 to 1987, Gold Shield recovered solvents from off-site hazardous waste streams by distillation. From 1987 to 1991, Gold Shield consolidated all spent solvent drum storage to one area and then shipped the drums off site for treatment. Since 1991, Gold Shield has operated as a transfer facility for spent solvent generated off site.

From 1970 to 1987, Gold Shield's distillation process generated still bottoms consisting of spent solvent, waste oil, grease and dirt. These still bottoms were derived from the distillation of the following: 1,1,1-trichloroethane (F001 and F002); trichloroethylene (F001 and F002); tetrachloroethylene (F001 and F002); methylene chloride (F001 and F002); and trichlorotrifluoroethane (F001 and F002).

From 1970 to the present, Gold Shield has also sold virgin solvents which include; trichlorotrifluoroethane; tetrachloroethylene; 1,1,1-trichloroethane; methylene chloride; and trichloroethylene. The virgin solvents are stored indoors on the first floor in 55-gallon drums.

From 1991 to the present, Gold Shield has not generated any waste streams. All spent solvents handled in Gold Shield's Transfer Facility (SWMU 7) are stored for less than 10 days in trailers. After 10 days, spent solvents are transferred to Detrex Corporation in Detroit, Michigan for reclamation. The Transfer Facility (SWMU 7) is active.

ENFORCEMENT
CONFIDENTIAL

The facility has operated at its current location since 1969. The facility occupies 0.25 of an acre in an industrial area and employs about five people. The facility currently operates as a transfer facility. The facility's current regulatory status is that of an interim status hazardous waste storage facility. Since 1991, no hazardous waste has been generated, stored (for greater than 10 days), treated, or disposed of on site. From 1970 to 1991, the facility operated as a hazardous waste treatment, storage, or disposal (TSD) facility. From 1970 to 1987, spent solvents arriving at the facility were distilled and the resulting still bottoms were shipped off site for fuel blending, further distillation or disposal. From 1987 to 1991, the facility stored spent solvents in Former Drum Storage Area No. 3 (SWMU 5) and the drums were picked up for off-site reclamation.

Gold Shield has always been owned by Detrex Corporation of Southfield, Michigan. Gold Shield leases the facility from Jim Heybore and Richard Bolt. Previously, Gold Shield leased the site from Wally Graves who owns Mid-Michigan Service, an automobile service station located directly south of Gold Shield. A roofing company and then a food distributor operated at the facility prior to Gold Shield. The facility representative does not know the dates of operation of these companies.

Gold Shield submitted a RCRA Part A permit application listing treatment (T04) of 755,000 pounds of F001 waste per year for distillation in Former Waste Reclamation Area (SWMU 1). The application also listed storage (S01 and S02) of 175,000 pounds of F002 waste in Former Drum Storage Area Nos. 1, 2, 3, and 4 (SWMUs 3, 4, 5, and 9), and Former Still Bottom Storage Tanks (SWMU 2).

In 1990, Gold Shield conducted RCRA closure activities for the Former Drum Storage Area Nos. 1, 2, 3, and 4 (SWMUs 3, 4, 5, and 9) and the Former Still Bottom Storage Tanks (SWMU 2). Gold Shield submitted certification of closure to Michigan Department of Natural Resources (MDNR) in September 1991 with the Summary of Closure Activities report. According to the facility representative, Gold Shield is still waiting for closure approval from MDNR. Currently, Gold Shield is a storage facility until MDNR approval of closure. At that time, Gold Shield will become a transfer facility.

Soils and groundwater located off site and directly to the east and south of the facility are known to be contaminated with chlorinated solvents. The contamination to the east is a result of an unreported

spill in the Former Waste Loading Area (SWMU 8). Under MDNR's supervision, soil and groundwater sampling have been conducted on separate occasions as a result of MDNR Notice of Violations and as a part of closure activites. Soil excavation of the area was conducted as a result of MDNR Notice of Violations. Gold Shield disposed off site approximately 300 cubic yards of soil. According to the facility representative, Gold Shield is waiting for MDNR comments on its closure activities before undertaking any further remediation.

The facility is not required to have a National Pollution Discharge Elimination System (NPDES) permit.

The PA/VSI identified the following 9 SWMUs and no AOCs at the facility:

Solid Waste Management Units

1. Former Waste Reclamation Area
2. Former Still Bottom Storage Tanks
3. Former Drum Storage Area No. 1
4. Former Drum Storage Area No. 2
5. Former Drum Storage Area No. 3
6. Former Waste Handling Area
7. Transfer Facility
8. Former Waste Loading Area
9. Former Drum Storage Area No. 4

The nearest surface water body, the Grand River, is located 0.25 mile west of the facility and is used for muncipal water purposes. The Grand River discharges to Lake Michigan. Other surface water bodies in the area include Lake Michigan, which is 25 miles west of the facility, and Fish Lake and Reed Lake, which are located about 4.5 miles east of the facility.

Drinking water in the area is obtained partly from the Grand River, from April to October, and from Lake Michigan all year long. The nearest residental well on record is located about 2 miles southwest and downgradient of the facility. Groundwater tends to flow southwest, west toward the Grand River.

Wetlands are located along the Grand River, 0.25 mile west of the facility. No sensitive environments are located on site.

Surface water drainage is directed away from the building structure toward storm sewer drains located in the streets. However, the loading and unloading ramp on the west side of the facility slopes downward in towards the facility. Storm water previously drained to a sump in the loading ramp that was connected to the storm sewer. The sump was plugged during loading and unloading of spent solvent drums to prevent the release of spilled material, if any, to the storm sewer. Presently, the sump is sealed and storm water runs into a grated drain at the top of the ramp that drains into the storm sewer.

Grand Rapids has a population of about 189,126. The nearest school, East High School, is located about 0.5 mile east of the facility. Gold Shield does not have a fence around the facility. Security consists of locked doors and windows.

The potential for a past release to groundwater, surface water, air and on-site soils from the Former Waste Reclamation Area (SWMU 1); the Former Still Bottom Storage Tanks (SWMU 2); and the Former Drum Storage Area Nos. 1, 2, 3, and 4 (SWMUs 3, 4, 5, and 9) was low. All of these SWMUs were located indoors on the first floor or in the basement. Wastes in all the SWMUs, except SWMU 1, were stored closed. The concrete basement acted as secondary containment for all the SWMUs and it contained no floor drains or openings.

The potential for past release to groundwater, surface water, air and on-site soils from the Former Waste Handling Area (SWMU 6) was low. This unit was located on a permeable hardwood floor with the adjacent loading ramp acting as secondary containment. A sump leading to the storm sewer is located in the adjacent loading ramp and was plugged during waste handling. The wastes were stored in closed drums.

The potential for release to groundwater, surface water, air, and on-site soils from the Transfer Facility (SWMU 7) is low. The sump in the loading ramp is permanently sealed. The wastes are stored for less than 10 days, are not opened at the facility, and are stored closed.

A release occurred from the Former Waste Loading Area (SWMU 8). Although this unit is no longer used and soil excavation was completed, chlorinated solvent contamination of soil and groundwater remains. For air and surface water, the potential for release is low. The contamination is in the subsurface.

PRC recommends that the facility continue closure activities as required by MDNR for SWMUs 2,3,4,5,8, and 9. PRC recommends no further action at this time for SWMUs 1,6, and 7.

1.0 INTRODUCTION

PRC Environmental Management, Inc. (PRC), received Work Assignment No. R05032 from the U.S. Environmental Protection Agency (EPA) under Contract No. 68-W9-0006 (TES 9) to conduct preliminary assessments (PA) and visual site inspections (VSI) of hazardous waste treatment and storage facilities in Region 5.

As part of the EPA Region 5 Environmental Priorities Initiative, the RCRA and CERCLA programs are working together to identify and address RCRA facilities that have a high priority for corrective action using applicable RCRA and CERCLA authorities. The PA/VSI is the first step in the process of prioritizing facilities for corrective action. Through the PA/VSI process, enough information is obtained to characterize a facility's actual or potential releases to the environment from solid waste management units (SWMU) and areas of concern (AOC).

A SWMU is defined as any discernible unit at a RCRA facility in which solid wastes have been placed and from which hazardous constituents might migrate, regardless of whether the unit was intended to manage solid or hazardous waste.

The SWMU definition includes the following:

- RCRA-regulated units, such as container storage areas, tanks, surface impoundments, waste piles, land treatment units, landfills, incinerators, and underground injection wells
- Closed and abandoned units
- Recycling units, wastewater treatment units, and other units that EPA has usually exempted from standards applicable to hazardous waste management units
- Areas contaminated by routine and systematic releases of wastes or hazardous constituents. Such areas might include a wood preservative drippage area, a loading or unloading area, or an area where solvent used to wash large parts has continually dripped onto soils.

An AOC is defined as any area where a release of hazardous waste or constituents to the environment has occurred or is suspected to have occurred on a nonroutine and nonsystematic basis. This includes any area where a strong possibility exists that such a release might occur in the future.

The purpose of the PA is as follows:

- Identify SWMUs and AOCs at the facility
- Obtain information on the operational history of the facility
- Obtain information on releases from any units at the facility
- Identify data gaps and other informational needs to be filled during the VSI

The PA generally includes review of all relevant documents and files located at state offices and at the EPA Region 5 office in Chicago.

The purpose of the VSI is as follows:

- Identify SWMUs and AOCs not discovered during the PA
- Identify releases not discovered during the PA
- Provide a specific description of the environmental setting
- Provide information on release pathways and the potential for releases to each medium
- Confirm information obtained during the PA regarding operations, SWMUs, AOCs, and releases

The VSI includes interviewing appropriate facility staff; inspecting the entire facility to identify all SWMUs and AOCs; photographing all visible SWMUs; identifying evidence of releases; making a preliminary selection of potential sampling parameters and locations, if needed; and obtaining additional information necessary to complete the PA/VSI report.

This report documents the results of a PA/VSI of the Detrex Corporation Gold Shield Solvents Division (Gold Shield), facility (EPA Identification No. MID 020 906 764) in Grand Rapids,

Michigan. The PA was completed on June 18, 1993. PRC gathered and reviewed information from the Michigan Department of Natural Resources (MDNR), Federal Emergency Management Agency (FEMA), U.S. Department of Agriculture (USDA), U.S. Department of Commerce (DOC), U.S. Department of the Interior (DOI), and U.S. Geological Survey (USGS), and from EPA Region 5 RCRA files. The VSI was conducted on June 22, 1993. It included interviews with facility representatives and a walk-through inspection of the facility. PRC identified nine SWMUs and no AOCs at the facility.

The VSI is summarized and 13 of the 18 inspection photographs are included in Appendix A. The photographs have been renumbered; thus, their numbers differ from the photograph numbers in the VSI field notes, which are included in Appendix B.

2.0 FACILITY DESCRIPTION

This section describes the facility's location; past and present operations; waste generating processes and waste management practices; history of documented releases; regulatory history; environmental setting; and receptors.

2.1 FACILITY LOCATION

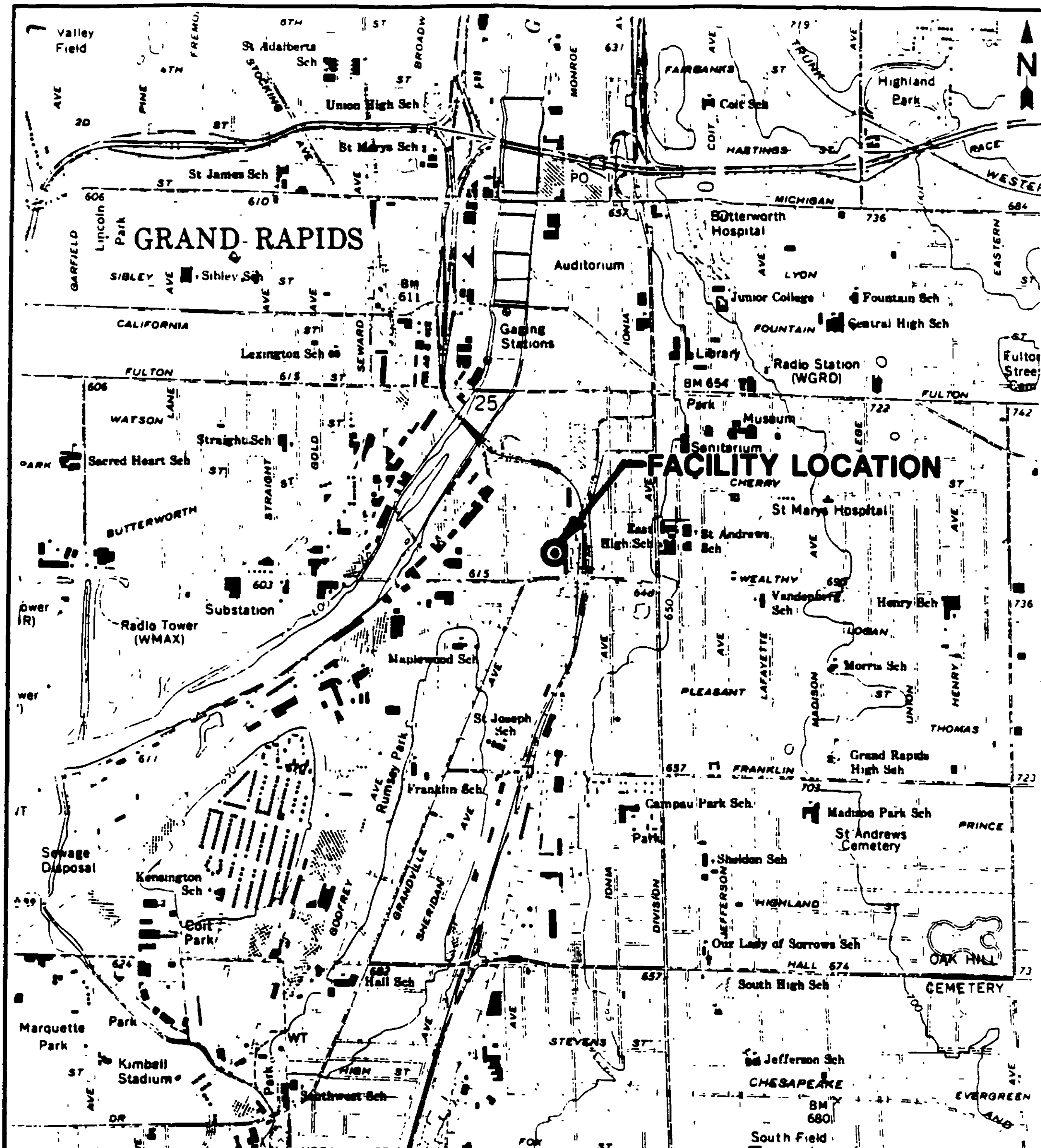
Gold Shield is located at 312 Ellsworth Avenue, SW, in Grand Rapids, Kent County, Michigan. Figure 1 shows the location of the facility in relation to the surrounding topographic features. The facility is located at latitude 43° 30' 00" West and longitude 85° 30' 00" North. The facility occupies about 0.25 acre in an industrial area.

The facility is bordered on the north by Great Lakes Distributing; on the west by a parking lot, vacant buildings, and a Grand Rapids fire station; on the south by Mid-Michigan Service; and on the east by a city parking lot.

2.2 FACILITY OPERATIONS

Gold Shield began operations in Grand Rapids, Michigan, in 1969. The facility employs five people that work one shift a day, five days a week. Gold Shield has always been owned by Detrex Corporation of Southfield, Michigan. Gold Shield is also the product name of the solvent Gold Shield previously reclaimed and resold. From the start of operations, 1969, to the present, Gold Shield has been a vendor of chlorinated solvents for industrial use.

Gold Shield has performed three different types of operations with spent solvents received from various industries. The three types of operations included recovering solvents, storing and shipping spent solvents, as well as transferring spent solvents. From 1970 to 1987, Gold Shield recovered solvents from hazardous waste streams via distillation. From 1987 to 1991, Gold Shield consolidated all spent solvent drum storage to one area and then shipped the drums off site for treatment. Since 1991, Gold Shield has operated as a transfer facility for spent solvents. These three operations are discussed below.



SCALE 1:24000

1 1/2 0 1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

SCALE: 1" = 2,000'

DETREX CORPORATION
GOLD SHIELD SOLVENTS DIVISION
GRAND RAPIDS, MICHIGAN

FIGURE 1

FACILITY LOCATION

QUADRANGLE LOCATION

SOURCE: MODIFIED FROM USGS, GRAND RAPIDS WEST, MICHIGAN, QUADRANGLE 1967 (PHOTOREVISED 1981)

PRC ENVIRONMENTAL MANAGEMENT, INC.

The Gold Shield facility received spent solvents in 55-gallon drums from off-site customers and other Detrex Corporation facilities. Spent solvents were transferred from the customer's trucks in the Former Waste Handling Area (SWMU 6). Facility personnel dated, sampled, and transferred the drums to the appropriate area in the Former Drum Storage Area Nos. 1, 2, 3, and 4 (SWMUs 3, 4, 5, and 9) to await reclamation in the Former Waste Reclamation Area (SWMU 1). Drum contents were identified by specific gravity and chromatographic analysis. Once identified, drums containing the same spent solvent were transferred to the Former Waste Reclamation Area (SWMU 1). The drum contents were individually discharged into a batch distillation unit and the solvent content was removed by heating the material with indirect steam. As the level of solvent in the still fell, additional spent solvent was introduced until the still reboiler contained only still bottoms. At this point, the still bottoms were heated to a predetermined temperature to further reduce the solvent content. The still bottoms were then gravity fed to the Former Still Bottom Storage Tanks (SWMU 2) located in the basement of the facility. The still bottoms were pumped to a contract carrier tanker owned by Michigan Environmental Recovery, Inc. of Grand Rapids, Michigan. Low yield solvents arriving at the facility could not be distilled so these wastes were added to the still bottoms. Still bottoms were transferred by piping to contract carrier trucks through the Former Waste Loading Area (SWMU 8). Michigan Environmental Recovery, Inc. transported the still bottoms to Industrial Fuel Resources (IFR) in Indianapolis, Indiana, for fuel blending; and Petrochem Inc. in Detroit, Michigan, for fuel reblending; and Detrex Corporation's Detroit, Michigan, plant for more efficient distillation.

In 1987, Gold Shield consolidated all hazardous waste drum storage to Former Drum Storage Area No. 3 (SWMU 5). Also in 1987, the facility ceased reclaiming spent solvent by distillation and at this time, dismantled the Former Waste Reclamation Area (SWMU 1), and removed the Former Still Bottom Storage Tanks (SWMU 2). From 1987 to 1991, the facility operated as a hazardous waste storage facility. Off-site industries brought their spent solvent to Gold Shield where it was stored for greater than 90 days in the Former Drum Storage Area No. 3 (SWMU 5). Every few weeks, a contract carrier would pick up the spent solvent drums and transfer them to Detrex Corporation in Detroit, Michigan, for recycling.

In 1991, Gold Shield began operating as a hazardous waste transfer facility. However, Gold Shield remains a hazardous waste storage facility until MDNR approves closure. Currently, facility

personnel transfer the spent solvent arriving at Gold Shield directly to one of two transfer trailers parked in the loading area. The spent solvents are not stored on the premises but instead are directly transferred to the two trailers that make up the Transfer Facility (SWMU 7). Within 10 days, they are transported to Detrex Corporation in Detroit, Michigan, for recycling.

Since 1969, Gold Shield sold virgin solvents which include the following: trichlorotrifluoroethane; tetrachloroethylene; 1,1,1 trichloroethane; methylene chloride; and trichloroethylene. In the past, bulk virgin solvents were delivered to the east side of the facility by rail car. The virgin solvents were transferred from the rail car to the facility through the overhead door on the east side of the facility. According to the facility representative, it is not known when delivery of the virgin solvents by rail car began or ceased. Since 1969, virgin solvents have been delivered to the facility in tanker trucks and in 55-gallon drums transported by semitrailer trucks. Virgin solvents are presently stored in 55-gallon drums on the first floor. Since 1970, virgin solvents have also been stored in outdoor tanks. In 1970, two 10000-gallon steel above ground storage tanks (AST) and one 5000-gallon AST were installed and a concrete dike was constructed around all three ASTs. In February 1989, these ASTs were replaced with two 7700-gallon ASTs constructed of double-walled steel. The two ASTs are still surrounded by a 7-foot high concrete dike. Both tanks are equipped with a vacuum monitoring system that provides continuous surveillance of the inner and outer walls.

From 1969 to 1987, Gold Shield operated from one building consisting of a basement and a first floor. Since 1987, Gold Shield has operated only on the first floor of the building. There is a parking area adjacent to the west side of the building. There is a sloped loading ramp where the transfer trailers are parked is located inside on the west side of the building. This ramp is part of the Transfer Facility (SWMU 7).

According to a facility representative, first a roofing company and then a food distributor operated at the site prior to Gold Shield. The facility representative did not know the dates of operation of these companies or when the facility was built. In 1969, Gold Shield leased the facility property and building from Wally Graves who also owned the Mid-Michigan Service, an automobile service station, which is located adjacent to the facility. At some unknown point, Wally Graves sold the Gold Shield property and building to Jim Heybore and Richard Bolt, who are the present owners.

The Gold Shield business has always been owned by Detrex Corporation of Southfield, Michigan, since operations began in 1969.

2.3 WASTE GENERATION AND MANAGEMENT

This section describes waste generation and management at the Gold Shield facility. The facility's SWMUs are identified in Table 1. The facility layout, including SWMUs, is shown in Figures 2 and 2A. The facility's waste streams are summarized in Table 2.

From 1991 to the present, Gold Shield has operated as a transfer facility for spent solvents. Customers transport spent solvents in 55-gallon steel drums to the facility in their own vehicles. Gold Shield also picks up the spent solvents from customers when delivering virgin solvent in Gold Shield trucks. The spent solvents include: trichlorotrifluoroethane (F001 and F002); tetrachloroethylene (F001 and F002); methylene chloride (F001 and F002); 1,1,1 trichloroethane (F001 and F002); and trichloroethylene (F001 and F002). When spent solvents generated off site arrive at the facility, they are transferred from either the customer's or Gold Shield's truck directly to one of two trailers parked in the facility's loading dock. The trailers in the loading ramp are owned by Detrex Corporation of Detroit, Michigan. Drums containing spent solvent are stored for no more than 10 days in the Transfer Facility (SWMU 7) trailers. This is the only known area of the facility used to store spent solvents. The maximum amount of waste that could be stored in one trailer is 88 55-gallon drums. Two trailers are parked in the Transfer Facility (SWMU 7). After 10 days, Detrex Corporation trucks transfer the accumulated drums of spent solvent to the Detrex Corporation in Detroit, Michigan, for recycling. From 1991 to the present, Gold Shield has not generated any hazardous wastes. According to the facility representative, Gold Shield receives about 60 55-gallon drums of spent solvent a month from off-site generators.

From 1987 to 1991, Gold Shield operated as a transporter and storage facility for spent solvents generated off site. Customers transported spent solvents in 55-gallon steel drums to the Former Waste Handling Area (SWMU 6) by their own trucks. Gold Shield trucks also picked up spent solvents from customers when delivering virgin solvent. These spent solvents included trichlorotrifluoroethane (F001 and F002); tetrachloroethylene (F001 and F002); 1,1,1 trichloroethane

TABLE 1

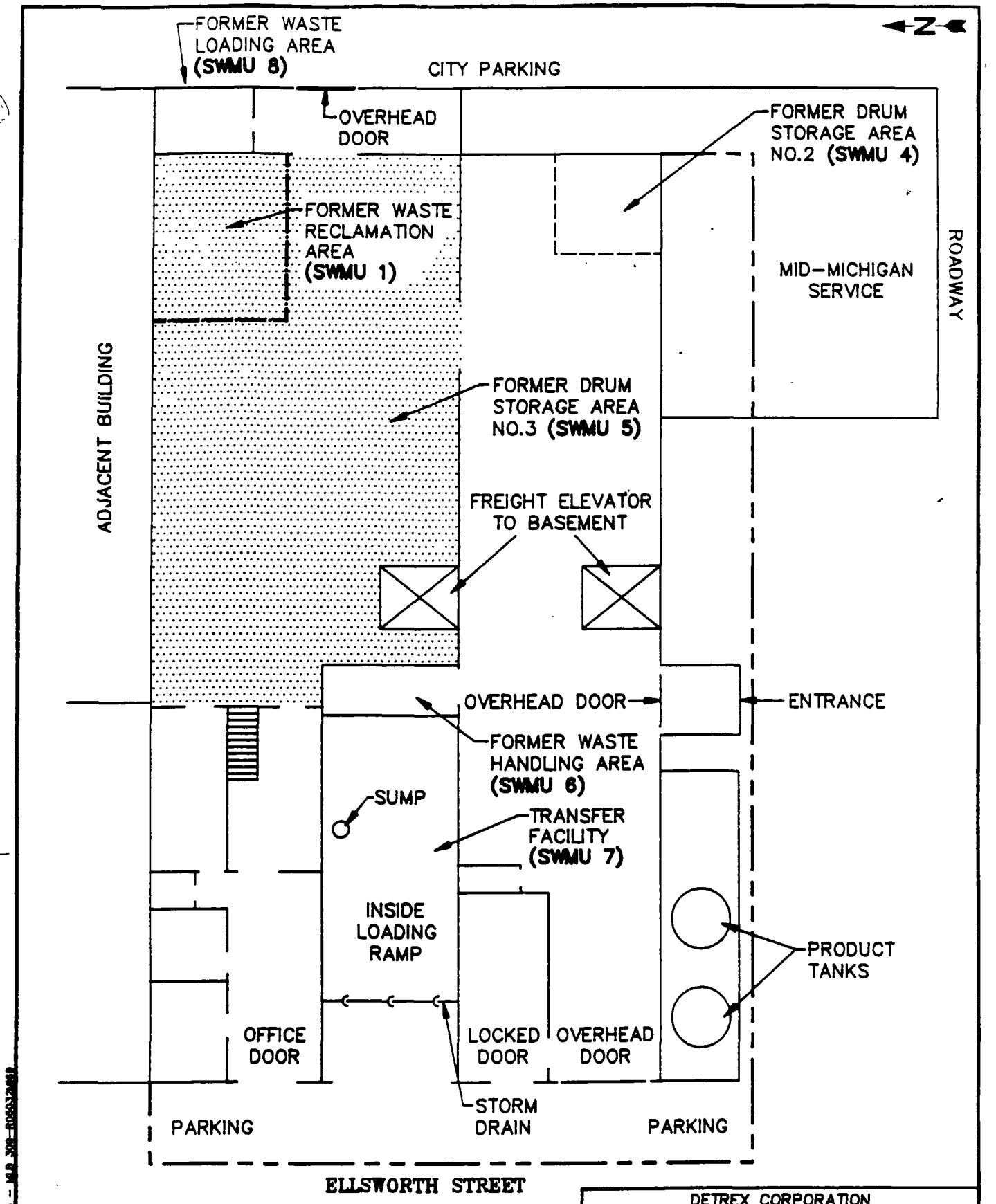
SOLID WASTE MANAGEMENT UNITS

SWMU Number	SWMU Name	RCRA Hazardous Waste Management Unit[a]	Status
1	Former Waste Reclamation Area	No	Inactive since 1987.
2	Former Still Bottom Storage Tanks	Yes[b]	Inactive; closure activities ongoing
3	Former Drum Storage Area No. 1	Yes	Inactive; closure activities ongoing
4	Former Drum Storage Area No. 2	Yes	Inactive; closure activities ongoing
5	Former Drum Storage Area No. 3	Yes	Inactive; closure activities ongoing
6	Former Waste Handling Area	No	Inactive since 1991.
7	Transfer Facility	No	Active
8	Former Waste Loading Area	No	Inactive; closure activities ongoing
9	Former Drum Storage Area No. 4	Yes	Inactive; closure activities ongoing

Note:

[a] A RCRA hazardous waste management unit is one that currently requires or formerly required submittal of a RCRA Part A or Part B permit application.

[b] Not included on Part A application but closed because it stored wastes for greater than 90 days.



DETREX CORPORATION
GOLD SHIELD SOLVENTS DIVISION
GRAND RAPIDS, MICHIGAN

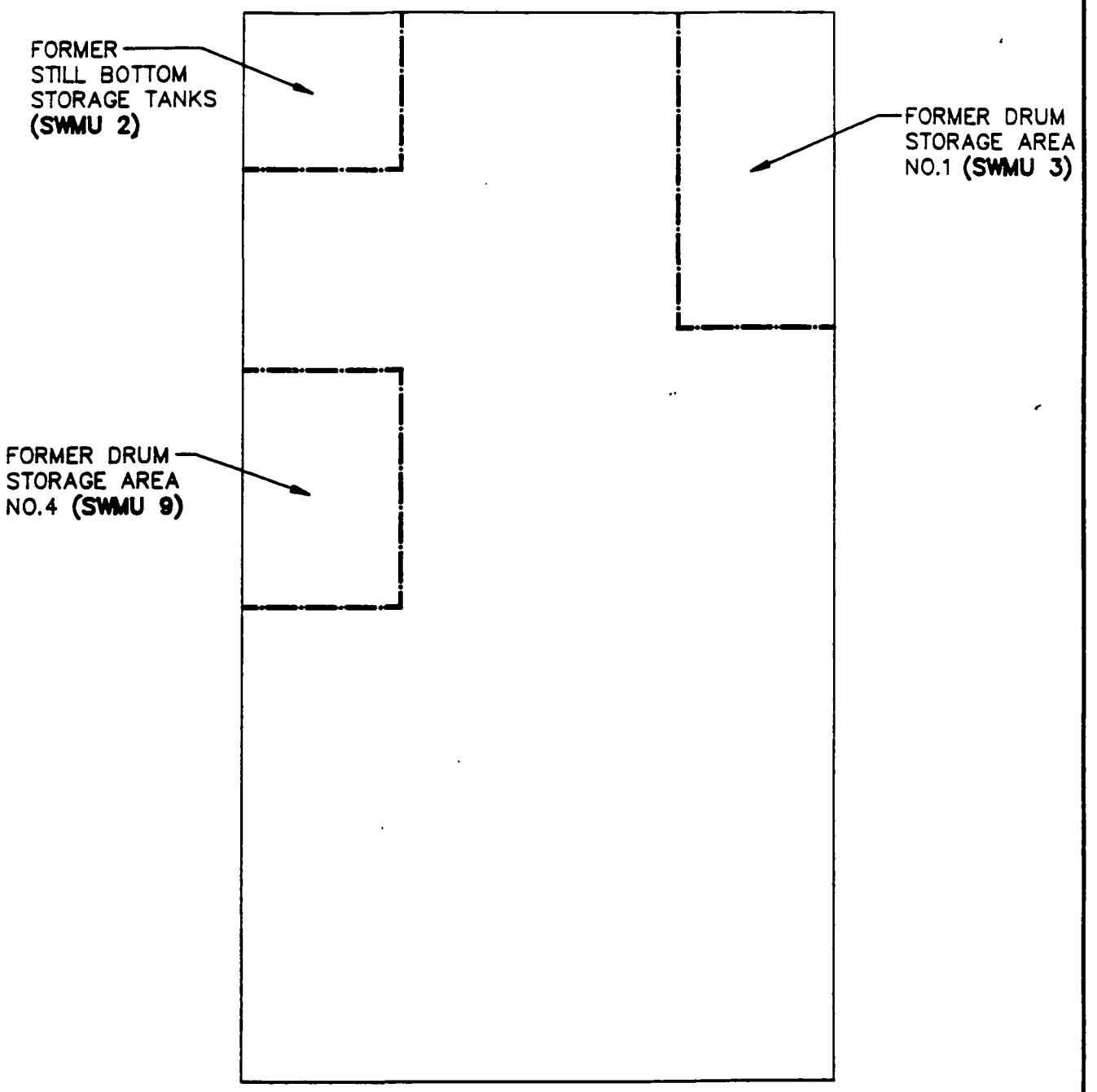
FIGURE 2

FACILITY LAYOUT - FIRST FLOOR

SOURCE: MODIFIED FROM GOLD SHIELD ACT 64 OPERATING LICENSE APPLICATION

10' 0 10' 20'
SCALE: 1" = 20'

ENVIRONMENTAL MANAGEMENT, INC.



BASEMENT

SOURCE: MODIFIED FROM GOLD SHIELD ACT 64 OPERATING LICENSE APPLICATION

10' 0 10' 20'
SCALE: 1" = 20'

DETREX CORPORATION
GOLD SHIELD SOLVENTS DIVISION
GRAND RAPIDS, MICHIGAN

FIGURE 2A

FACILITY LAYOUT – BASEMENT

ENVIRONMENTAL MANAGEMENT, INC.

TABLE 2

SOLID WASTES

Waste/EPA Waste Code[a]	Source	Solid Waste Management Unit
Spent Solvent/F001 and F002	Off-site generators	SWMUs 1 through 9
Still Bottoms/F001 and F002	Former Waste Reclamation Area	SWMUs 1, 2, and 6
Waste Oil (containing dirt and grease)/NA[b]	Former Waste Reclamation Area	SWMUs 1, 2, and 6

Notes:

[a] All wastes are past waste streams.

[b] NA designates nonhazardous wastes.

(F001 and F002); methylene chloride (F001 and F002); and trichloroethylene (F001 and F002). Gold Shield unloaded the drums in the Former Waste Handling Area (SWMU 6) then transferred them for storage to the Former Drum Storage Area No. 3 (SWMU 5) located on the first floor. Drums of spent solvent were stored in SWMU 5 for greater than 90 days.

About every 2 weeks, Detrex Corporation trucks picked up the drums of spent solvent and transferred them to its Detroit, Michigan facility for recycling. From 1987 to 1991, Gold Shield did not generate any hazardous wastes on site. Each month, the facility receives about 60 55-gallon drums of spent solvent from off-site generators.

From 1969 to 1987, Gold Shield operated as a generator, transporter, and storage facility. Beginning in 1970, the facility recycled spent solvents through the Former Waste Reclamation Area (SWMU 1). When solvents became contaminated with oils and other contaminants through various industrial processes, customers brought their spent solvent in 55-gallon drums to the Former Waste Handling Area (SWMU 6). Gold Shield trucks also picked up customer's spent solvents when delivering virgin solvent. According to the facility representative, these spent solvents included mostly 1,1,1-trichloroethane (F001 and F002); trichloroethylene (F001 and F002); and methylene chloride (F001 and F002). Some tetrachloroethylene (F001 and F002) and trichlorotrifluoroethane (F001 and F002) were also reclaimed. Gold Shield then sampled and analyzed the drum contents and placed drums with similar contents in one of the four Former Drum Storage Area Nos. 1, 2, 3, and 4 (SWMUs 3, 4, 5, and 9) for greater than 90 day storage.

From the Former Drum Storage Area Nos. 1, 2, 3, and 4 (SWMUs 3, 4, 5, and 9), the drums were transferred to the Former Waste Reclamation Area (SWMU 1) on the first floor. Spent solvent was pumped from 55-gallon drums into two former process feed tanks of SWMU 1. Process feed tanks fed spent solvent into two former distillation units. The former distillation units consisted of two small Detrex Perm-A-Chlor brand stills with an estimated maximum capacity of about 50 gallons per hour for each still. The stills contained cooling coils located at the open top. Once distillation removed contaminants consisting primarily of waste oil, grease, and dirt from the spent solvents, the recovered solvent was transferred directly to an open top barrel with a cooling coil. From here the liquid was transferred directly to closed 55-gallon drums. If waste oil remained in the solvent, the solvent went through a second distillation and was then transferred into closed 55-gallon drums. The

drums of reclaimed solvent were transferred to the virgin solvent storage area. The reclaimed solvent was returned to the customer for reuse or sold as reclaimed solvent. Each month, various off-site generators returned about 60 55-gallon drums of F001 and F002 spent solvent to Gold Shield to be reclaimed.

The Former Waste Reclamation Area (SWMU 1), generated still bottoms from the distillation process. These still bottoms consisted of removed waste oil, grease, and dirt. Still bottoms were gravity fed to the Former Still Bottom Storage Tanks (SWMU 2) located in the basement. If spent solvent with low solvent yield arrived at the facility, it was added to the still bottoms in the Former Still Bottom Storage Tanks (SWMU 2). When the Former Still Bottom Storage Tanks (SWMU 2) were full, the contents were pumped to the Former Waste Loading Area (SWMU 8), which was on ground level, where they were loaded into tank trucks. According to a facility representative, information about the contract carrier that owned the tank trucks is unavailable. The contract carrier transported the waste still bottoms which contained only waste oil to IFR in Indianapolis, Indiana, or Petrochem in Detroit, Michigan for fuel reblending. If the waste still bottoms contained low yield solvents, Gold Shield sent the waste still bottoms to Detrex Corporation in Detroit, Michigan for further more efficient distillation. In 1985, the facility generated 44,500 gallons of waste oil and 13,800 gallons of low yield spent solvent (Gold Shield 1986). The facility representative did not have more recent figures on annual quantities of hazardous waste generated. However, after 1987, the facility no longer operated the Former Waste Reclamation Area (SWMU 1). Therefore, after 1987, Gold Shield did not generate any hazardous wastes.

2.4 HISTORY OF DOCUMENTED RELEASES

This section discusses the history of documented releases to groundwater, surface water, air, and on-site soils at the facility.

According to the facility representative, there were railroad tracks in the off-site area adjacent to and directly east of the facility owned by Chesterfield and Ohio Railroad. Virgin solvents were transported to the facility by rail car. From 1970 to 1987, the Former Waste Loading Area (SWMU 8) was used by contract carrier tankers to pick up waste still bottoms from the Former Still Bottom Storage Tanks (SWMU 2) for off-site treatment. The area to the east of the facility is owned by the

City of Grand Rapids, Michigan. In November 1985, during an MDNR investigation, MDNR discovered drippings from a pipe that was located in the Former Waste Loading Area (SWMU 8) (Conestoga-Rovers 1988). This pipe brought up still bottoms from the Former Still Bottom Storage Tanks (SWMU 2). According to the facility representative, it is unknown how long this pipe had been dripping. At the request of MDNR, Gold Shield excavated a trench a few feet wide and about 34 feet long between the building and the rail spur. The trench was excavated to a depth of about 3 feet. 300 cubic yards of soil were disposed of off site (Conestoga-Rovers 1988). MDNR collected a soil sample from the bottom of the trench. Analysis of the soil sample revealed the presence of 4.8 parts per million (ppm) of tetrachloroethylene; 5.5 ppm of 1,1,1-trichloroethane; and 2,500 ppm of trichloroethylene. The trench was deepened to about 5 feet, and two additional soil samples were collected from the bottom of the trench. Soil sample analyses revealed concentrations of 0.7 ppm and 29 ppm of trichloroethylene.

Based on the levels of trichloroethylene and other chlorinated solvent compounds found in the soil and the potential for leaching of the compounds into the groundwater, MDNR found Gold Shield in violation of Michigan Act 245. MDNR issued a Notice of Violation to Gold Shield on November 21, 1985 (MDNR 1985b). The Notice of Violation requested that Gold Shield determine the extent of soil contamination caused by solvents handled by Gold Shield. In April 1986, EDI Engineering and Science (EDI) of Grand Rapids, Michigan, drilled 17 soil borings between the east wall of the facility and the railroad tracks. The soil samples were analyzed at EDI's laboratory. Chemical analysis revealed the following concentrations: trichloroethylene levels between 0.10 milligrams per kilogram (mg/kg) and 560 mg/kg; 1,1,1-trichloroethane levels between 0.041 mg/kg and 0.13 mg/kg; and tetrachloroethylene levels between .020 mg/kg and 5.4 mg/kg (EDI 1986). According to a facility representative, MDNR required no further action by Gold Shield in this area at that time.

In July 1988, an excavation took place on Mid-Michigan Service's property located to the south of Gold Shield. This excavation was conducted because of petroleum-related contaminants on Mid-Michigan property. During this excavation, soil was found to be contaminated with trichloroethylene and other solvent compounds. Consequently, MDNR sent Gold Shield a Notice of Violation on July 25, 1988, that indicated MDNR held Gold Shield responsible for the contamination of the soil located in the area to the south of Gold Shield on Mid-Michigan Service's property (MDNR 1988b). In this Notice of Violation, MDNR required Gold Shield to develop a work plan outlining how the area of

contamination adjacent to its facility would be defined and remediated. On September 26, 1988, Gold Shield submitted a work plan to MDNR (Conestoga-Rovers 1989a). MDNR approved the work plan on October 10, 1988 (Conestoga-Rovers 1989a).

During the week of December 5, 1988, 39 soil samples were collected. Analysis of the soil samples revealed the following: 20 soil samples were found to contain trichloroethylene in concentrations between 1 mg/kg and 920 mg/kg; six soil samples were found to contain 1,1,1-trichloroethane in concentrations between 2 mg/kg and 120 mg/kg; and nine soil samples were found to contain total petroleum hydrocarbons (TPH) in concentrations between 11 mg/kg and 3,900 mg/kg (Conestoga-Rovers 1989a). Of nine samples collected from three locations beneath the building, only one was found to have detectable concentrations of trichloroethylene at 310 mg/kg (Conestoga-Rovers 1989a). Conestoga-Rovers concluded that except for this isolated area beneath the building, past Gold Shield operations have not impacted the overburden soil beneath the building. According to the facility representative, on March 30, 1989, Gold Shield submitted a final report on the site investigation to MDNR for review. Gold Shield has not yet received comments from MDNR pertaining to the final report. According to a facility representative, any remediation of contaminated soil will be addressed by Gold Shield subsequent to receipt of comments, pertaining to the final report, from MDNR.

From January 21 to February 22, 1991, a sampling program was conducted in accordance with Gold Shield's closure plan for the Former Still Bottom Storage Tanks (SWMU 2), and Former Drum Storage Area Nos. 1, 2, 3, and 4 (SWMUs 3, 4, 5, and 9). The sampling program involved the following: soil borings; monitoring well installation; soil sampling; groundwater sampling; geotechnical sampling; and single well response testing. A total of 80 soil samples were analyzed for volatile organic compounds (VOC) and TPHs from 20 boreholes (Conestoga-Rovers 1991). Groundwater samples were collected from three existing monitoring wells on site and from three monitoring wells installed as part of the closure sampling program. All samples were analyzed for VOCs and TPHs (Conestoga-Rovers 1991).

VOCs were detected in all boreholes sampled for chemical analyses. The halogenated VOCs that were detected consistently in all boreholes and that exhibited the highest concentrations were trichloroethylene; 1,1,1-trichloroethene; 1,2-dichloroethene; and tetrachlororethene (Conestoga-Rovers 1991). TPHs, benzene, toluene, xylene and ethylbenzene were detected in most boreholes made

beneath the facility and on Mid-Michigan Services's property (Conestoga-Rovers 1991). Various halogenated VOCs were detected in all monitoring wells. The halogenated VOCs that were detected consistently in all wells and at the highest concentrations were trichloroethylene; 1,1,1-trichloroethene; 1,2-dichloroethene; and tetrachloroethene (Conestoga-Rovers 1991). Benzene, toluene, xylene, and ethylbenzene were detected at elevated concentrations in the wells located on and adjacent to Mid-Michigan Service's property to the south of Gold Shield (Conestoga-Rovers 1991).

According to a facility representative, Gold Shield is waiting for MDNR review and comments on the closure. Based on MDNR comments, Gold Shield will undertake any remedial action at that time.

2.5 REGULATORY HISTORY

Gold Shield submitted a Notification of Hazardous Waste Activity form to EPA on July 9, 1980 (Gold Shield 1980a). The facility submitted a RCRA Part A permit application on November 14, 1980 (Gold Shield 1980b). The RCRA Part A permit application listed treatment of 755,000 pounds of F001 waste for reclamation in distillation units (T04). The application also listed storage of 175,000 pounds of F002 waste in drums (S01). Gold Shield's Part A permit application listed the following process design capacities: container storage (S01) was 20,000 gallons; tank storage was (S02) was 1,900 gallons; and treatment (T04) was 2,000 gallons per day.

On May 5, 1988, MDNR sent Gold Shield a notice requiring it to submit an Act 64 operating license application (RCRA Part B permit application) for hazardous waste storage facilities (MDNR 1988a). On November 7, 1988, Gold Shield submitted the required operating license application for Former Drum Storage Area No. 3 (SWMU 5) (Conestoga-Rovers 1988). In this application, Gold Shield revised its Part A permit application from 20000-gallon design capacity for process code S01, plus revised the 1900-gallon design capacity for process code S02 to a 21900-gallon design capacity for only process code S01. These revisions were made because the Former Still Bottom Storage Tanks (SWMU 2) had been closed and the tank storage process design capacity was transferred to container storage process design capacity only. On November 30, 1988, MDNR sent a notice to Gold Shield indicating that the Former Still Bottom Storage Tanks (SWMU 2) had hazardous wastes stored for periods in excess of 90 days (MDNR 1988c). Consequently, the tanks had to be closed in accordance

with 40 Code of Federal Register Part 265, Subpart G. According to MDNR, closure and certification of the closure were required to be completed before the transfer of tank storage process design capacity (S02) to the container storage process design capacity (S01). MDNR required Gold Shield to submit a closure plan for the Former Still Bottom Storage Tanks (SWMU 2).

On April 18, 1989, MDNR issued a Notice of Deficiency and Letter of Warning to Gold Shield indicating Gold Shield's Act 64 Operating License Application was incomplete (MDNR 1989a). Gold Shield had 15 deficient areas including no signature from the titleholder of land on which the facility is constructed, and no evidence of financial assurance for closure and post-closure care and liability coverage. On June 19, 1989, Gold Shield submitted a revised Act 64 Operating License Application that addressed the deficiencies noted in MDNR's letter of warning of April 18, 1989 (Conestoga-Rovers 1989b). On September 15, 1989, MDNR issued a Notice of Violation and Proposed Consent Order to Gold Shield (MDNR 1989b). Gold Shield submitted an incomplete operating license application on June 19, 1989. MDNR required Gold Shield to resolve the Notice of Violation by entering into a Consent Order or by submitting a completed operating license application by October 2, 1989. On October 11, 1989, Gold Shield entered into a Consent Order with MDNR (MDNR 1989c). On October 24, 1989, Gold Shield submitted financial assurance for closure and post-closure care and liability coverage (Gold Shield 1989a) in compliance with the Consent Order. On November 22, 1989, Gold Shield withdrew its Act 64 operating license application because the titleholder of the land where the facility is constructed would not sign the application (Gold Shield 1989b). On November 28, 1989, MDNR approved Gold Shield's Act 64 operating license application withdrawal request (MDNR 1989d).

On February 7, 1989, Gold Shield submitted a closure plan for the Former Still Bottom Storage Tanks (SWMU 2). On May 2, 1989, MDNR issued a Notice of Deficiency for the closure plan (MDNR 1989c). MDNR also required Gold Shield to close two of the Former Drum Storage Area Nos. 1 and 2 (SWMUs 3 and 4) and to submit a revised closure plan for these areas. Former Drum Storage Area No. 3 (SWMU 5) was still active at this time. On June 5, 1989, Gold Shield submitted a revised plan of closure that included the Former Still Bottom Storage Tanks (SWMU 2), and the Former Drum Storage Area Nos. 1 and 2 (SWMUs 3 and 4) (Conestoga-Rovers 1989c). On May 10, 1990, MDNR approved the closure plan with some modifications (MDNR 1990a). MDNR requested that Gold Shield conduct soil and groundwater sampling and analysis. On July 23, 1990, Gold

Shield submitted an amended closure plan requesting exemption from MDNR's requirement to use well screens no longer than 5 feet (Conestoga-Rovers 1990). Gold Shield felt that due to the relatively thin saturated zone of the uppermost aquifer and the low detection limits for the major parameters of concern, a single well screen at each location that monitors the full saturated thickness, would be adequate to determine if groundwater was contaminated. On September 5, 1990, MDNR approved the amended closure plan but did not approve use of well screens of greater than 5 feet in length (MDNR 1990b).

On September 18, 1990, MDNR issued a Notice of Violation to Gold Shield for failure to submit adequate current financial assurance for closure and post-closure care (MDNR 1990c). On September 21, 1990, Gold Shield submitted documents to satisfy the financial assurance requirement. On September 27, 1990, MDNR approved Gold Shield's financial assurance and the Notice of Violation was resolved (MDNR 1990d).

Because Gold Shield withdrew its Act 64 operating license application, MDNR required closure of Former Drum Storage Area No. 3 (SWMU 5). On February 1, 1991, Gold Shield requested an extension to the closure time required by MDNR (Gold Shield 1991a). On February 11, 1991, MDNR extended the closure date to April 5, 1991. In May 1991, Gold Shield completed closure of the Former Still Bottom Storage Tanks (SWMU 2); and the Former Drum Storage Area Nos. 1, 2, 3, and 4 (SWMUs 3, 4, 5, and 9). Although it was not included in the closure plan, Gold Shield closed Former Drum Storage Area No. 4 (SWMU 9). Gold Shield submitted certification of closure in September 1991 (Conestoga-Rovers 1991). According to the facility representative, the report of closure activities are currently under review by MDNR, and Gold Shield is waiting for approval of its closure from MDNR.

Since July 1991, Gold Shield had operated as a transfer facility. Gold Shield submitted a Transfer Facility Application to MDNR on July 31, 1991 (Gold Shield 1991b). On October 21, 1993, MDNR renewed Gold Shield's transfer facility license.

MDNR conducted routine RCRA inspections of the Gold Shield facility. On September 7, 1982, MDNR conducted a RCRA inspection at Gold Shield and subsequently issued a Notice of Violation citing six paperwork violations (MDNR 1982). According to the facility representative, Gold Shield

corrected the paperwork violations and complied with the Notice of Violation. MDNR conducted a RCRA inspection at Gold Shield on September 7, 1983. As a result of the inspection, MDNR issued a Notice of Violation which cited Gold Shield for not having an inspection schedule available, and not for keeping 2 feet of freeboard between the Former Still Bottom Storage Tanks (SWMU 2) (MDNR 1983). According to the facility representative, Gold Shield corrected these violations and achieved compliance.

On October 19, 1984, MDNR conducted a RCRA inspection of Gold Shield and issued a Notice of Violation for not storing the Former Still Bottom Storage Tanks (SWMU 2) closed and for storing more hazardous waste than Gold Shield is authorized by their RCRA Part A permit application (MDNR 1984a). On November 13, 1984, MDNR notified Gold Shield it had achieved compliance with the Notice of Violation (MDNR 1984b).

From 1985 to 1987, MDNR RCRA inspections showed Gold Shield had problems with excessive drum accumulation, waste spills from the Former Still Bottom Storage Tanks (SWMU 2), and various RCRA and Act 64 paperwork requirements (MDNR 1985a, 1986, 1987). From 1988 to 1989, according to MDNR inspection reports, drum accumulation problems and paperwork violations decreased. The Former Still Bottom Storage Tanks (SWMU 2) were dismantled in 1987, and RCRA closure was conducted in 1991. Therefore, waste spills from SWMU 2 were no longer a problem. From 1990 to 1992, MDNR noted no significant violations at Gold Shield (MDNR 1992).

The facility is not required to have operating air permits.

The facility does not have a National Pollution Discharge Elimination System (NPDES) permit. Storm water collected in the grated drain at the top of the loading ramp in the Transfer Facility (SWMU 7) discharges to the storm sewer.

The facility has no record of having any underground storage tanks on site. The facility has no record of any CERCLA activity.

2.6 ENVIRONMENTAL SETTING

This section describes the climate; flood plain and surface water; geology and soils; and groundwater in the vicinity of the facility.

2.6.1 Climate

The climate in Grand Rapids is temperate. The average daily temperature is 47.1 °F. The lowest average daily temperature is 16.4 °F in January and the highest average daily temperature is 80.6 °F in July (USDA 1986).

The west-central region of Michigan, including Kent County, receives a total annual precipitation of 36.37 inches (USDA 1986). The mean annual lake evaporation for the area is about 30 inches (DOC 1968). The 1-year, 24-hour maximum rainfall is approximately 2.25 inches (DOC 1963).

The average relative humidity at mid-afternoon is approximately 62 percent. At dawn, the humidity reaches an average of approximately 82 percent. The average seasonal snowfall is 76.0 inches (USDA 1986). The prevailing wind is from the west, and the average wind speed is highest in January at 11.5 miles per hour.

2.6.2 Flood Plain and Surface Water

The facility is not located in a 100-year or a 500-year flood plain (FEMA 1982). This area is not prone to flooding, so the facility is not required to have flood control devices or structures. The nearest surface water, the Grand River, is located about 0.25 mile west of the facility and is used for residential and industrial supplies. Lake Michigan is located about 25 miles west of the facility.

Surface water runoff is directed away from the building structure toward storm sewers located in the street, with the exception of the loading and unloading ramp. The loading and unloading ramp slopes downward to the east inside the facility. Storm water flows into the ramp during heavy periods of precipitation. Storm water previously drained to a sump that was connected to the storm sewer. The

sump was plugged during loading and unloading of hazardous waste drums to prevent the release of any spilled material to the storm sewer. Presently, the sump is sealed and storm water runs into a grated drain at the top of the ramp that drains into the storm sewer. The storm sewer discharges to the Grand River.

2.6.3 Geology and Soils

The west-central area of Michigan, including Kent County, consists of geology and soils dating back to the Pleistocene age (about 2 million years ago). The soil located around the facility is in the Oakville Association. These soils are well to moderately well drained. The surface layer is dark grayish brown fine sand about 6 inches thick. The subsoil is loose fine sand about 34 inches thick. The underlying material is at a depth of about 60 inches and is light yellowish brown, loose fine sand. Permeability is rapid and available water capacity is low. Surface runoff is slow. The soil readily absorbs but does not adequately filter effluent. The poor filtering capacity may result in the pollution of groundwater supplies (USDA 1986). Directly beneath the Gold Shield facility, there is about 5 feet of fill material and 7 feet of upper till.

Below the upper till, there is a layer of alluvium. This layer is located approximately 9 to 27 feet below the ground surface. The next layer is the lower till. This material consists of brown clay-silt, gray clay-sand, and gray clay-silt members. This material is poorly sorted and contains trace gravel-clasts. Beneath the lower till, there is an area of bedrock rubble. This rubble consists of clay, silt, and sand matrix. This material was located at about 48 feet below ground surface (bgs). The bedrock is found 60 feet bgs. It consists of a layer of shale and sandstone (Conestoga-Rovers 1991).

2.6.4 Groundwater

Two aquifers were identified in the area of the facility. A shallow water aquifer is located in the alluvial sand and gravel at a depth of approximately 20 to 25 feet bgs. The other aquifer consists of a deeper shale-sandstone bedrock system. The two are separated by a lower clay till unit that is non-water bearing, and has a hydraulic conductivity of less than 2×10^{-8} centimeters per second (cm/sec). The lower till is considered a confining layer and as such, the two aquifers are not hydraulically interconnected. In the alluvial sand and gravel aquifer, flow is assumed to be to the west-southwest.

The alluvial sand and gravel aquifer system (uppermost) is overlain by an upper till unit with a thickness ranging from 5 to 8 feet. The upper till unit is continuous across the facility (Conestoga-Rovers 1991).

Kent County private wells draw their water from aquifers composed of sands, gravels, and silts, which are typical glacial outwash features. Many wells are located in the glacial drift, where substantial quantities of water are produced. For this information the material properties allow for the high transmissivities values which are reported. Transmissivity values as high as 100,000 gallons per day per foot have been reported (Conestoga-Rovers 1989a).

Groundwater in the area tends to flow west-southwest along the path of the Grand River to Lake Michigan.

Groundwater contamination throughout the town of Grand Rapids has been documented at multiple sites. The contamination has resulted from oil tank discharges, chemical spills, and landfills (EPA 1981). The nearest residential well on record is located about 2 miles southwest and downgradient of the facility. The next nearest well is located about 4.75 miles southeast and upgradient of the facility.

2.7 RECEPTORS

The facility occupies 0.25 acre in an industrial area in Grand Rapids, Michigan. Grand Rapids has a population of about 189,126 (Rand McNally 1993).

The facility is bordered on the north by Great Lakes Distributing, on the west by a parking lot and vacant buildings, on the south by the Mid-Michigan service station, and on the east by city municipal parking. The nearest school, East High School, is located about 0.25 mile east of the facility. Access into Detrex is controlled by security doors and overhead doors that remain locked at all times when the facility is unattended.

The nearest surface water body, the Grand River, is located 0.25 mile west of the facility and is used for municipal water purposes. The Grand River discharges to Lake Michigan. Other surface water

bodies in the area include Lake Michigan, which is 25 miles west of the facility. Fish Lake and Reed Lake are located about 4.5 miles east of the facility (USGS 1981).

Groundwater is also used as a private water supply. Drinking water in the area is obtained from the Grand River from April to October, and from Lake Michigan all year. The intakes on the Grand River are located about 1 mile upstream, northwest of the facility, at the Monroe Avenue filtration plant (Grand Rapids City Hall 1992). The nearest residential well on record is located about 2 miles southwest and downgradient of the facility. The next nearest well is located about 4.75 miles southeast; upgradient of the facility. Groundwater tends to flow west west-southwest toward the Grand River.

Sensitive environments are not located on site. The nearest sensitive environment, a wetland area, is located 0.25 mile west of the facility along the Grand River. Along the Grand River are forested wetland areas ranging in size from 0.50 acre to about 10 acres. All of the wetlands are palustrine and most are forested (DOI 1985).

3.0 SOLID WASTE MANAGEMENT UNITS

This section describes the nine SWMUs identified during the PA/VSI. The following information is presented for each SWMU: description of the unit, dates of operation, wastes managed, release controls, history of documented releases, and PRC's observations. Figure 2 shows the SWMU locations.

SWMU 1 **Former Waste Reclamation Area**

Unit Description: This unit was located indoors on the first floor in the northeast corner of the facility. This unit was used to distill spent solvents in order to reclaim solvents for return to customers or to be sold. It consisted of two small batch distillation units and two process feed tanks. Information concerning the construction details of the distillation units was unavailable. The capacity of each distillation unit was about 50,000 gallons per hour. The capacity of the feed tanks was 950 gallons each. No floor drains are present. The unit was located on a permeable wooden floor.

Date of Startup: The unit began operation in 1970.

Date of Closure: This unit has been inactive since 1987. It was dismantled and shipped off site for disposal. It was listed on Gold Shield's Part A permit application but did not undergo RCRA closure.

Wastes Managed: This unit managed spent solvents (F001 and F002).

Release Controls: The basement, which was constructed of concrete with peripheral concrete block walls, acted as a secondary containment area beneath this unit. The basement is 75 feet by 135 feet. The floor slab is free of gaps, floor drains, or other such openings. The base of the

elevator shaft acts as a collection sump for the basement. The basement's capacity is 9,750 gallons.

History of Documented Releases: No releases from this unit have been documented.

Observations: This SWMU has been removed. PRC observed no evidence of release. (see Photograph No. 6).

SWMU 2 **Former Still Bottom Storage Tanks**

Unit Description: Historically, the facility has used seven tanks to accumulate still bottoms that remain at the end of the distillation. These tanks were located in the northeast corner of the basement. The tops of these rectangular carbon steel tanks were open. No floor drains were present near this unit. The dimensions and capacity of each tank are summarized as follows:

Tank No.	Capacity (Gallons)	Dimensions in inches (length x width x height)
1	300	48.25 x 32.25 x 48.25
2	500	72.25 x 36.25 x 48.25
3	500	72.25 x 36.50 x 48
4	350	48 dia. x 42.50 long
5	905	80.50 x 39 x 70
6	905	80.50 x 39 x 70
7	905	80.50 x 39 x 70

Still bottoms were pumped out of this unit through piping that ran through an opening in the east wall. The still bottoms were loaded into waiting tankers in the Former Waste Loading Area (SWMU 8).

Date of Startup:	The unit began operation in 1970.
Date of Closure:	This unit has been inactive since 1987. Three tanks were removed before 1987. The remaining four tanks were removed in 1987 and the RCRA closure is waiting approval by MDNR.
Wastes Managed:	This unit managed waste oil (nonhazardous), grease, dirt, and low yield spent solvents. This unit's waste oil was picked up by a Michigan Environmental Recovery, Inc. and was transferred to IFR in Indianapolis, Indiana, or Petrochem in Detroit, Michigan, for fuel blending. If the still bottom contained low yield spent solvents, it was transported to Detrex Corporation in Detroit, Michigan, for distillation.
Release Controls:	The basement, which was constructed of concrete with peripheral concrete block walls, acted as a secondary containment area. The basement is 75 feet by 135 feet. The floor slab is free of all gaps, floor drains, or other such openings. The basement's capacity is 9,750 gallons. The elevator shaft acts as a collection sump for the basement.
History of Documented Releases:	No releases from this unit have been documented.
Observations:	This SWMU has been removed. However, the basement is still in existence. PRC noted staining on the ceiling, walls, and floor of the basement (see Photographs No. 10 and 11).

SWMU 3	**Former Drum Storage Area No. 1**
Unit Description:	This unit was located in the southeast corner of the basement. Spent solvent was stored in closed 55-gallon steel drums. The unit's dimensions were about 20 feet by 40 feet. The drums sat on the concrete floor of the basement. No floor drains were present.
Date of Startup:	The unit began operation in 1970.
Date of Closure:	This unit has been inactive since 1987. Gold Shield is waiting for MDNR approval of closure activities.
Wastes Managed:	This unit managed spent solvents (F001 and F002). The spent solvent was transferred to the Former Waste Reclamation Area (SWMU 1). After reclamation, the solvent was redrummed and returned to the customer or resold.
Release Controls:	The basement, which was constructed of concrete with peripheral concrete block walls, acted as a containment area. The basement is 75 feet by 135 feet. The floor slab is free of all gaps, floor drains or other such openings. The base of the old elevator shaft acts as a collection sump for the basement. The basement's capacity is 9,750 gallons.
History of Documented Releases:	No releases from this unit have been documented.
Observations:	This SWMU has been removed. However, the basement is still in existence. PRC noted extensive staining on the ceiling, walls, and floor of the basement (see Photograph No. 9).

SWMU 4	**Former Drum Storage Area No. 2**
Unit Description:	This unit was located indoors in the southeast corner of the first floor. Spent solvent was stored in 55-gallon steel drums. The unit's dimensions were about 16 feet by 15 feet. The drums sat on a permeable hardwood plank floor. No floor drains were present.
Date of Startup:	The unit began operation in 1970.
Date of Closure:	This unit has been inactive since 1987. Gold Shield is waiting for MDNR approval of closure activities.
Wastes Managed:	This unit managed spent solvents (F001 and F002). Spent solvents were reclaimed in the Former Waste Reclamation Area (SWMU 1) or were sent off site for treatment.
Release Controls:	The basement, which was constructed of concrete with peripheral concrete block walls, acted as a containment area. The basement is 75 feet by 135 feet. The floor slab is free of all gaps, floor drains, or other such openings. The base of the old elevator shaft acts as a collection sump for the basement. The basement's capacity is 9,750 gallons.
History of Documented Releases:	No releases from this unit have been documented.
Observations:	This SWMU has been removed. However, the basement is still in existence. PRC noted staining on the ceiling, walls, and floor of the basement. The hardwood floor of the former SWMU was being replaced at the time of the VSI (see Photograph No. 7).

SWMU 5	**Former Drum Storage Area No. 3**
Unit Description:	This unit was located indoors in the northeast corner of the first floor. From 1970 to 1987, this unit was used for greater than 90-day storage of spent solvents before being transferred to the Former Waste Reclamation Area (SWMU 1) or to an off-site facility for treatment. From 1987 to 1991, this unit was used for greater than 90-day storage of spent solvents before transferring them to an off-site facility for treatment. The unit was 3,587 square feet and can hold 398 55-gallon drums. The unit sat on a permeable hardwood plank floor. The wood floor is overlain by 0.375-inch thick metal plating. No floor drains were present.
Date of Startup:	The unit began operation in 1970.
Date of Closure:	This unit has been inactive since 1991. Gold Shield is waiting for MDNR approval of closure activities.
Wastes Managed:	The unit managed spent solvents (F001 and F002). From 1970 to 1987, spent solvents in this unit were transferred to the Former Waste Reclamation Area (SWMU 1). From 1987 until 1991, all spent solvents were transferred to Detrex Corporation in Detroit, Michigan, for recycling.
Release Controls:	The basement, which was constructed of concrete with peripheral concrete block walls, acted as a containment area. The basement is 75 feet by 135 feet. The floor slab is free of all gaps, floor drains, or other such openings. The base of the old elevator shaft acted as a collection sump for the basement. The basement's capacity is 9,750 gallons.

History of Documented Releases: No releases from this unit have been documented.

Observations: This SWMU has been removed. However, the basement is still in existence. PRC noted staining on the ceiling, walls, and floor of the basement. The hardwood floor of the unit was also still present and at the time of the VSI, product solvents were stored there (see Photograph No. 2 and 5).

SWMU 6 **Former Waste Handling Area**

Unit Description: This unit is located on the west side of the facility. This unit was used to unload drums of spent solvents from customer's trucks and then to transfer the drums to one of the Former Drum Storage Area Nos. 1, 2, 3, and 4 (SWMUs 3, 4, 5, and 9). It was also used to load drums of spent solvent to be transported off site for treatment or disposal. This unit consisted of a dock area measuring 18 feet by 6 feet. A sump is located at the base of the adjacent loading ramp and it is connected to the storm sewer. In 1991, the sump was sealed. The loading ramp is constructed of concrete and the dock area is made of a hardwood plank floor.

Date of Startup: The unit began operation in 1970.

Date of Closure: This unit has been inactive since 1991.

Wastes Managed: This unit managed spent solvents (F001 and F002). The drums of spent solvent were transferred to one of the Former Drum Storage Area Nos. 1, 2, 3, and 4 (SWMUs 3, 4, 5, or 9) for storage for greater than 90 days. From there, the spent solvent was reclaimed in the Former Waste Reclamation Area (SWMU 1).

Release Controls:	A sump located at the base of the loading ramp collected storm runoff and discharged it to the storm sewer. When hazardous wastes were loaded or unloaded, the pipe connecting the sump to the storm sewer was plugged. The sloped loading ramp adjacent to the SWMU, has a capacity of about 7616 gallons and acts as secondary containment.
History of Documented Releases:	No releases from this unit have been documented.
Observations:	The concrete floor of the loading ramp and the dock area were in good condition and free of cracks. The sump has been permanently sealed. A grated drain runs across the floor at the top of the ramp. Some dark staining was visible around the grated drain. A 6-inch berm now surrounds the dock area (see Photograph No. 1).
SWMU 7	**Transfer Facility**
Unit Description:	This unit consists of two trailers parked in the loading ramp at the front (west) side of the facility. It is located in an enclosed building. This unit's loading ramp is 40 feet by 18 feet. Drums are transferred directly from the customer's trucks to Gold Shield trailers on the loading ramp. Hazardous wastes are not located or stored anywhere on the premises except in the trailers. Maximum drum storage is 88 55-gallon drums per trailer. A grated drain is located 12 feet inside the overhead door of the loading ramp. The drain is connected to the storm sewer.
Date of Startup:	The unit began operation in 1991.
Date of Closure:	This unit is active.

Wastes Managed:	This unit manages spent solvents (F001 and F002). Spent solvents are transferred to Detrex Corporation in Detroit, Michigan, for treatment or disposal.
Release Controls:	The sloped ramp below the trailers acts as secondary containment. Total secondary containment is about 7616 gallons. The concrete in the loading ramp is covered with a sealant.
History of Documented Releases:	No releases from this unit have been documented.
Observations:	The concrete in the dock area and the loading area was in good condition and free of cracks. No drums were present in the trailers during the VSI. PRC noted dark staining around the grated drain at the top of the ramp (see Photograph Nos. 1, 8, and 13).
SWMU 8	**Former Waste Loading Area**
Unit Description:	This area was located outdoors along the east wall of the facility. From 1970 to an unknown date, virgin solvents were delivered to this area by rail car. From 1970 to 1987, still bottoms from the Former Still Bottom Storage Tanks (SWMU 2) were pumped to the waiting tanker trucks. Piping from the basement brought up the still bottoms.
Date of Startup:	The unit began operation in 1970.
Date of Closure:	This unit has been inactive since 1987. Gold Shield is waiting for MDNR approval of closure activities.
Wastes Managed:	This unit managed spent solvents (F001 and F002). Still bottoms were transferred to IFR in Indianapolis, Indiana, or Petrochem in

	Detroit, Michigan, for fuel blending or Detrex Corporation in Detroit, Michigan, for distillation.
Release Controls:	This unit had no release controls.
History of Documented Releases:	In 1985, MDNR investigated a spill at this unit. Soil sampling was conducted and chlorinated solvent contamination was confirmed. A subsequent soil excavation took place.
Observations:	This area was covered with grass. PRC observed no evidence of release. (See Photograph Nos. 3 and 4).
SWMU 9	**Former Drum Storage Area No. 4**
Unit Description:	This unit was located along the north wall in the basement. Spent solvent was stored in closed 55-gallon steel drums. The unit's dimensions were about 20 feet by 30 feet. The drums sat on the concrete floor of the basement. No floor drains were present.
Date of Startup:	This unit began operation in 1970.
Date of Closure:	This unit has been inactive since 1987. Gold Shield is waiting for MDNR approval of closure activities.
Wastes Managed:	This unit managed spent solvents (F001 and F002). The spent solvent was transferred to the Former Waste Reclamation Area (SWMU 1). After reclamation, the solvent was redrummed and returned to the customer or resold.

Release Controls:	The basement, which was constructed of concrete with peripheral concrete block walls, acted as a containment area. The basement is 75 feet by 135 feet. The floor slab is free of all gaps, floor drains or other such openings. The basement's capacity is 9,750 gallons.
History of Documented Releases:	No releases from this unit have been documented.
Observations:	This unit had been removed. PRC noted no evidence of a release. (See Photograph No. 12).

4.0 AREAS OF CONCERN

PRC identified no AOCs during the PA/VSI.

5.0 CONCLUSIONS AND RECOMMENDATIONS

The PA/VSI identified nine SWMUs and no AOCs at the Gold Shield facility. Background information on the facility's location; operations; waste generating processes and waste management practices; history of documented releases; regulatory history; environmental setting; and receptors is presented in Section 2.0. SWMU-specific information, such as the unit's description, dates of operation, wastes managed, release controls, history of documented releases, and observed condition, is presented in Section 3.0. Following are PRC's conclusions and recommendations for each SWMU. Table 3, located at the end of this section, summarizes the SWMUs at the facility and the recommended further actions.

SWMU 1 **Former Waste Reclamation Area**

Conclusions: This unit posed a low overall threat of release to the environment. The unit managed hazardous wastes from off-site generators. The unit consisted of two process feed tanks and two batch distillation units. For surface water, on-site soil, and groundwater, the potential for release is low. This unit was located on a permeable hardwood floor. However, the basement acted as a secondary containment. The basement had no floor drains or openings. The potential for release to air was low. Although the spent solvents were distilled in an open unit, the SWMU was located indoors. There were no known releases from this unit. This unit has been inactive since 1987.

Recommendations: PRC recommends no further action for this SWMU at this time.

SWMU 2 **Former Still Bottom Storage Tanks**

Conclusions: This unit posed a low overall threat of release to the environment. This unit managed still bottoms from the Former Waste Reclamation Area (SWMU 1). From the start of operations in 1970, Gold Shield has used a total of seven tanks at various times. For surface water, on-site soils, and groundwater, the potential for release is low. This unit was located in the basement which had

a concrete floor with no floor drains or gaps. The tanks were stored closed in the basement. There were no known releases from this unit. This unit has been inactive since 1987. Gold Shield is waiting for MDNR approval of closure activities.

Recommendations: PRC recommends that the facility continue closure activities as required by MDNR.

SWMU 3 and 9 **Former Drum Storage Area No. 1**

Former Drum Storage Area No. 4

Conclusions: These units posed a low overall threat of release to the environment. These units managed spent solvents from off-site generators. Spent solvents were stored in 55-gallon drums in the basement. For air, on-site soil, surface water, and groundwater, the potential for release was low. These units were located on a concrete floor in the basement. The basement has no floor drains or openings. The drums were stored closed. There were no known releases from this unit. These units have been inactive since 1987. Gold Shield is waiting for MDNR approval of closure activities.

Recommendations: PRC recommends that the facility continue closure activities as required by MDNR.

SWMU 4 and 5 **Former Drum Storage Area No. 2**

Former Drum Storage Area No. 3

Conclusions: These units posed a low overall threat of release to the environment. These units managed spent solvents from off-site generators. Spent solvents were stored in 55-gallon drums on the first floor. For air, on-site soil, surface water, and groundwater, the potential for release is low. This unit was located on a permeable hardwood floor. The wood floor underneath SWMU 5 was overlain by 0.375-inch thick metal plating. However, the concrete basement acted as containment. The basement is free of floor drains or openings. The drums were stored closed and were kept indoors. There

were no known releases from these units. SWMU 4 has been inactive since 1987. SWMU 5 has been inactive since 1991. Gold Shield is waiting for MDNR approval of closure activities.

Recommendations: PRC recommends that the facility continue closure activities as required by MDNR.

SWMU 6 **Former Waste Handling Area**

Conclusions: This unit posed a low overall threat of release to the environment. This unit consisted of a dock area. This unit managed drums of spent solvents as they were loaded and unloaded from trucks. A sump was located at the base of the adjacent loading ramp. The dock area was a permeable hardwood floor. For on-site soils and groundwater, the potential for release is low. From 1970 to 1991, the dock area at the top of the ramp was not bermed. However, a sump, which was located in the adjacent loading ramp and leading to the storm sewer was plugged when wastes were being loaded or unloaded. The wastes were handled in closed 55-gallon drums. Although the dock area was a permeable hardwood floor, there was secondary containment in the in the loading ramp. For air and surface water, the potential for release is low. Wastes were handled in closed drums in this unit. The entire unit was located indoors. There were no known releases from this unit. This unit has been inactive since 1991.

Recommendations: PRC recommends no further action for this SWMU at this time.

SWMU 7 **Transfer Facility**

Conclusions: This unit poses a low overall threat of release to the environment. This unit manages spent solvents in 55-gallon drums. The unit consists of two trailers parked in a loading ramp. For surface water, air, on-site soils, and groundwater, the potential for release is low. Wastes are not located or

stored anywhere on the premises except in the trailers. The area is enclosed. There is a sump located at the base of the loading ramp, but it was sealed when the Transfer Facility began operations.

Recommendations: PRC recommends no further action for this SWMU at this time.

SWMU 8 **Former Waste Loading Area**

Conclusions: This unit managed hazardous wastes from off-site generators and virgin solvent. The unit consisted of the area adjacent to the east side of the facility. Based on investigations and soil and groundwater sampling by MDNR and Gold Shield, releases have previously occurred in this area. Although this unit is no longer used and soil excavation was done in the area to the east of the facility, chlorinated solvent contamination of soil and groundwater remains. For air and surface water, the potential for release is low. The contamination subsurface. When this unit was in operation, wastes were transferred through closed pipes to tankers. This unit has been inactive since 1987.

Recommendations: PRC recommends that Gold Shield continue with closure activities as required by MDNR.

TABLE 3

SWMU SUMMARY

SWMU	Dates of Operation	Evidence of Release	Recommended Further Action
1. Former Waste Reclamation Area	1970-1987	No	No further action at this time.
2. Former Still Bottom Storage Tanks	1970-1987	No	Continue closure activities as required by MDNR.
3. Former Drum Storage Area (No. 1)	1970-1981	No	Continue closure activities as required by MDNR.
4. Former Drum Storage Area (No. 2)	1970-1987	No	Continue closure activities as required by MDNR.
5. Former Drum Storage Area (No. 3)	1970-1991	No	Continue closure activities as required by MDNR.
6. Former Waste Handling Area	1970-1991	No	No further action at this time.
7. Transfer Facility	1991-present	No	No further action at this time.
8. Former Waste Loading Area	1970-1987	Yes, soil and groundwater contamination	Continue closure activities as required by MDNR.
9. Former Drum Storage Area (No. 4)	1970-1987	No	Continue closure activities as required by MDNR.

REFERENCES

Conestoga-Rovers & Associates Limited (Conestoga-Rovers). 1988. "Detrex Corporation Gold Shield Solvents Act 64 Operating License Application." November 7.

Conestoga-Rovers. 1989a. Final Report Site Investigation for TCE Contamination Discovered on Mid-Michigan's Property. March.

Conestoga-Rovers. 1989b. Letter Regarding Revisions of Detrex Corporation Gold Shield Solvents Act 64 Operating License Application. From Ed Roberts, Professional Engineer. To Ronda L. Hall, Environmental Engineer, Waste Management Division, Michigan Department of Natural Resources (MDNR). June 19.

Conestoga-Rovers. 1989c. Revised Plan of Closure for Hazardous Waste Storage Tanks and Hazardous Waste Container Storage Areas for Detrex Corporation Gold Shield Solvents Division. June.

Conestoga-Rovers. 1990. Amended Plan of Closure for Hazardous Waste Storage Tanks and Hazardous Waste Container Storage Areas for Detrex Corporation Gold Shield Solvents Division. July 23.

Conestoga-Rovers. 1991. Summary of Closure Report for Detrex Corporation Gold Shield Solvents Division. September.

Detrex Corporation Gold Shield Solvents Division (Gold Shield). 1980a. Notification of Hazardous Waste Activity. July 9.

Gold Shield. 1980b. Part A Permit Application. November 11.

Gold Shield. 1986. Generator Biennial Hazardous Waste Report for 1985. February 10.

Gold Shield. 1989a. Letter Regarding Submittal of Documents for Compliance with Consent Order. From I.H. Shamiyeh, Risk Management Director, Detrex Corporation Gold Shield Solvents. To Ronda Hall, Environmental Engineer, Waste Management Division, MDNR. October 24.

Gold Shield. 1989b. Letter Requesting Withdrawal of Act 64 Operating License Application. From I.H. Shamiyeh, Risk Management Director, Detrex Corporation Gold Shield Solvents. November 22.

Gold Shield. 1991a. Letter Requesting Extension of Closure Time. From C.U. Guy, Manager CERCLA Compliance. To Ronda L. Hall, Environmental Engineer, Waste Management Division, MDNR. February 1.

Gold Shield. 1991b. Transfer Facility Application. July 31.

EDI Engineering and Science. 1986. Report of Excavation and Soil Sampling. From James G. Venn, Project Geologist. To I.H. Shamiyeh, Risk Manager, Detrex Corporation, Gold Shield Solvents. November 21.

Federal Emergency Management Agency (FEMA). 1982. Flood Insurance Rate Map for the City of Grand Rapids, Michigan. Community-Panel Number 20 260106 0020 C.

Grand Rapids City Hall (City Hall). 1992. Interview Regarding Municipal Water Use in Grand Rapids. Between Randy Lehmoine, Engineering Department and Celeste Brancel and Cathy Collins, PRC Environmental Management, Inc. June 22.

Michigan Department of Natural Resources (MDNR). 1982. Letter of Notice of Violation for September 7, 1982, MDNR Inspection. From John Bantjes, Water Quality Specialist, MDNR. To James Harrison, Branch Manager, Gold Shield Solvents. September 14.

MDNR. 1983. Letter of Notice of Violation for September 7, 1983, MDNR Inspection. From Ronald C. Waybrant, District Supervisor, Hazardous Waste Division, MDNR. To James Harrison, Detrex Corporation Gold Shield Solvents Division. September 13.

MDNR. 1984a. Letter of Notice of Violation for October 19, 1984, MDNR Inspection. From Ronald C. Waybrant, District Supervisor, Hazardous Waste Division. To James Harrison, Detrex Corporation Gold Shield Solvents Division. October 22.

MDNR. 1984b. Letter of Compliance for October 22, 1984, Notice of Violation. From Dale M. DeKraker, Water Quality Specialist, Hazardous Waste Division. To James Harrison, Detrex Corporation Gold Shield Solvents Division. November 13.

MDNR. 1985a. Letter of Notice of Violation for October 4, 1985, MDNR Inspection. From Ronald C. Waybrant, District Supervisor, Hazardous Waste Division. To James Harrison, Detrex Corporation Gold Shield Solvents Division. October 9.

MDNR. 1985b. Letter of Notice of Violation for Levels of TCE Found in Soils to East of Gold Shield. From Anne Przybyla, Environmental Engineer, Groundwater Quality Division. To C.U. Guy, Detrex Corporation Gold Shield Solvents Division. November 21.

MDNR. 1986. Letter of Notice of Violation for July 11, 1986, MDNR Inspection. From Dale M. DeKraker, Environmental Quality Analyst, Hazardous Waste Division. To Sharon Burns, Detrex Corporation Gold Shield Solvents Division. July 14.

MDNR. 1987. Letter of Warning for May 27, 1987, MDNR Inspection. From Dale M. DeKraker, Environmental Quality Analyst, Hazardous Waste Division. To Sharon Burns, Detrex Corporation Gold Shield Solvents. June 1.

MDNR. 1988a. Letter Requesting Detrex Corporation Gold Shield Solvents Submit Act 64 Operating License. From Gordon Guyer, Acting Director. To Michael Tepatti, Michigan Region Manager, Detrex Corporation, Gold Shield Solvents. May 6.

MDNR. 1988b. Letter of Notice of Violation for Trichloroethylene Contamination on Mid-Michigan Service Station's Property. From Jenny Hoffman, Geologist, Environmental Response Division. To C.U. Guy, Detrex Corporation Gold Shield Solvents Division. July 25.

MDNR. 1988c. Letter Regarding Closure Requirement of Former Still Bottom Storage Tanks. From Ronda L. Hall, Environmental Engineer, Waste Management Division. To Mr. C.U. Guy, Manager of Environmental Compliance, Detrex Corporation, Gold Shield Solvents. November 30.

MDNR. 1989a. Letter Regarding Incomplete Act 64 Operating License Application. From Ronda L. Hall, Environmental Engineer, Waste Management Division. To Mr. C.U. Guy, Manager of Environmental Compliance, Detrex Corporation Gold Shield Solvents. April 18.

MDNR. 1989b. Letter Regarding Notice of Violation and Proposed Consent Order for Detrex Corporation Gold Shield Solvents Incomplete Act 64 Operating License Application. From Alan J. Howard, Chief, Waste Management Division. To. C.U. Guy, Manager of Environmental Compliance, Detrex Corporation Gold Shield Solvents. September 15.

MDNR. 1989c. Letter Regarding Executed Consent Order Between MDNR and Detrex Corporation Gold Shield Solvents. From Dennis Drake, Chief, Compliance and Enforcement Section, Waste Management Division. To I.H. Shamiyeh, Risk Management Director, Detrex Corporation Gold Shield Solvents. October 17.

MDNR. 1989d. Letter Approving Detrex Corporation Gold Shield Solvents Withdrawal of Act 64 Operating License Application. From Ronda L. Hall, Environmental Engineer, Waste Management Division. To I.H. Shamiyeh, Risk Management Director, Detrex Corporation Gold Shield Solvents. November 28.

MDNR. 1990a. Letter Approving Closure Plan With Attached Modifications. From Alan J. Howard, Chief, Waste Management Division. To I.H. Shamiyeh, Risk Management Director, Detrex Corporation Gold Shield Solvents Division. May 10.

MDNR. 1990b. Letter Approving Closure Plan With Attached Modifications. From Alan J. Howard, Chief, Waste Management Division. To I.H. Shamiyeh, Risk Management Director, Detrex Corporation Gold Shield Solvents Division. September 5.

MDNR. 1990c. Letter of Notice of Violation Regarding Financial Assurance for Closure and Post-Closure. From Alan J. Howard, Chief, Waste Management Division. To I.H. Shamiyeh, Risk Management Director, Detrex Corporation Gold Shield Division. September 18.

MDNR. 1990d. Letter of Compliance for September 18, 1990, Notice of Violation. From JoAnn Merrick, Waste Management Division. To I.H. Shamiyeh, Risk Management Director, Detrex Corporation Gold Shield Solvents Division. September 27.

MDNR. 1992. Letter of Compliance for January 17, 1992, MDNR Inspection. From Dale DeKraker, Environmental Quality Analyst, Waste Management Division. To Sharon Burns, Detrex Corporation Gold Shield Solvents Division. January 24.

Rand McNally. 1993. Map of Indiana and Michigan.

U.S. Department of Agriculture (USDA). 1986. *Soil Survey of Kent County, Michigan.* Soil Conservation Service. April.

U.S. Department of Commerce (DOC). 1963. *Climate Atlas of the United States.* U.S. Government Printing Office. Washington, DC.

U.S. Department of Commerce (DOC). 1968. *Climate Atlas of the United States.* U.S. Government Printing Office. Washington, DC.

U.S. Department of the Interior (DOI). 1985. National Wetlands Inventory Map of Grand Rapids, Michigan. Fish and Wildlife Service.

U.S. Environmental Protection Agency (EPA), 1981. *Hydrogeologic Atlas of Michigan.*

U.S. Geological Survey (USGS). 1981. 7.5-Minute Series Topographic Map of Grand Rapids West, Kent County, Michigan.

APPENDIX A

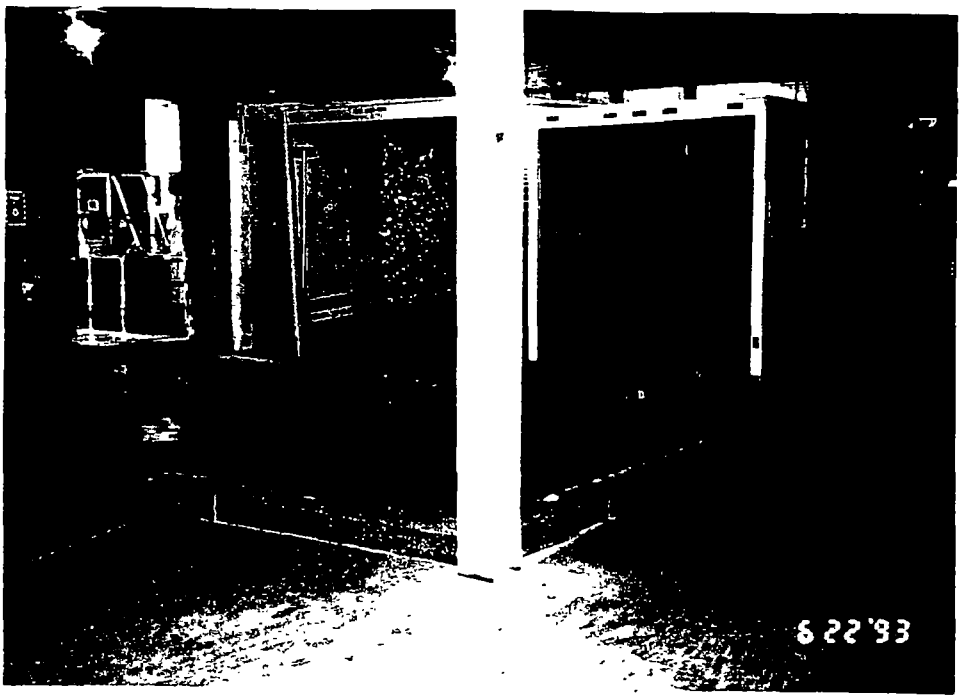
VISUAL SITE INSPECTION SUMMARY AND PHOTOGRAPHS

(8 Pages)

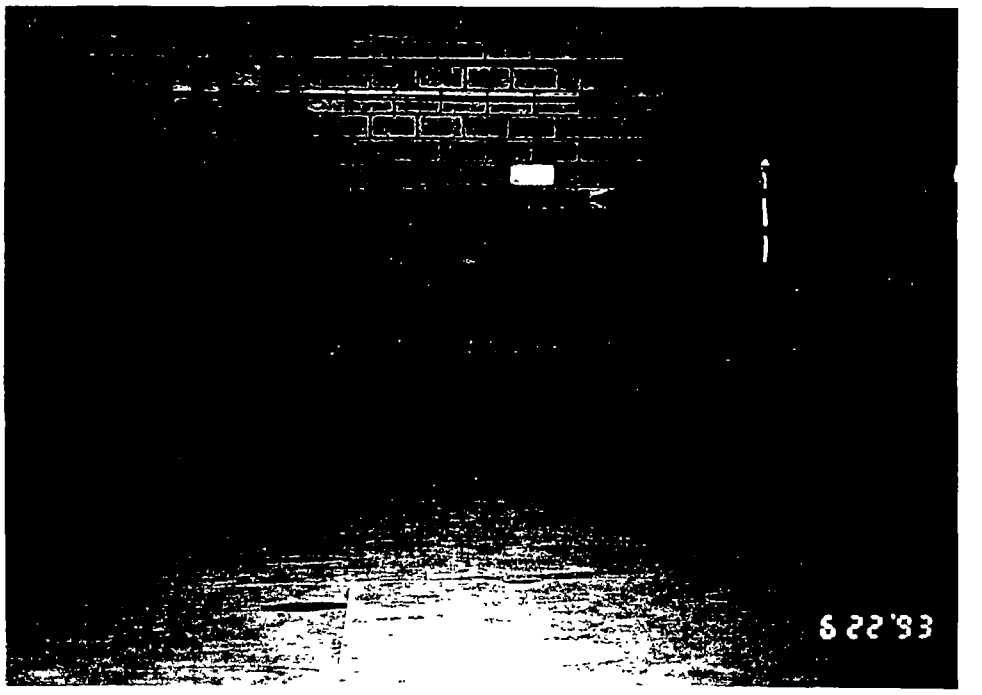
VISUAL SITE INSPECTION SUMMARY

DETREX CORPORATION, GOLD SHIELD SOLVENTS DIVISION
312 ELLSWORTH AVENUE, S.W.
GRAND RAPIDS, MICHIGAN 49503
MID 020 906 764

Date:	June 22, 1993
Primary Facility Representative:	William Moore, Corporate Manager, RCRA Section
Representative Telephone No.:	(313) 358-5800
Inspection Team:	Stacey Durley, PRC Environmental Management, Inc. (PRC) Margaret Flaherty, PRC
MDNR Representative:	Dale Dekraker, Environmental Quality Analyst
Photographer:	Stacey Durley
Weather Conditions:	Sunny, humid, 80° F.
Summary of Activities:	The visual site inspection (VSI) began at 11:15 a.m. with an introductory meeting. The inspection team explained the purpose of the VSI and the agenda for the visit. Facility representatives then discussed the facility's past and current operations, solid wastes generated, and release history. Facility representatives provided the inspection team with copies of requested documents. The VSI tour began at 12:30 p.m. PRC inspected nine SWMUs including the Former Waste Reclamation Area; the Former Still Bottom Storage Tanks; four Former Drum Storage Area Nos. 1, 2, 3, and 4; Former Waste Handling Area; Former Waste Loading Area; and the active Transfer Facility. The tour concluded at 2:00 p.m., after which the inspection team held an exit meeting with facility representatives. The VSI was completed and the inspection team left the facility at 2:15 p.m.



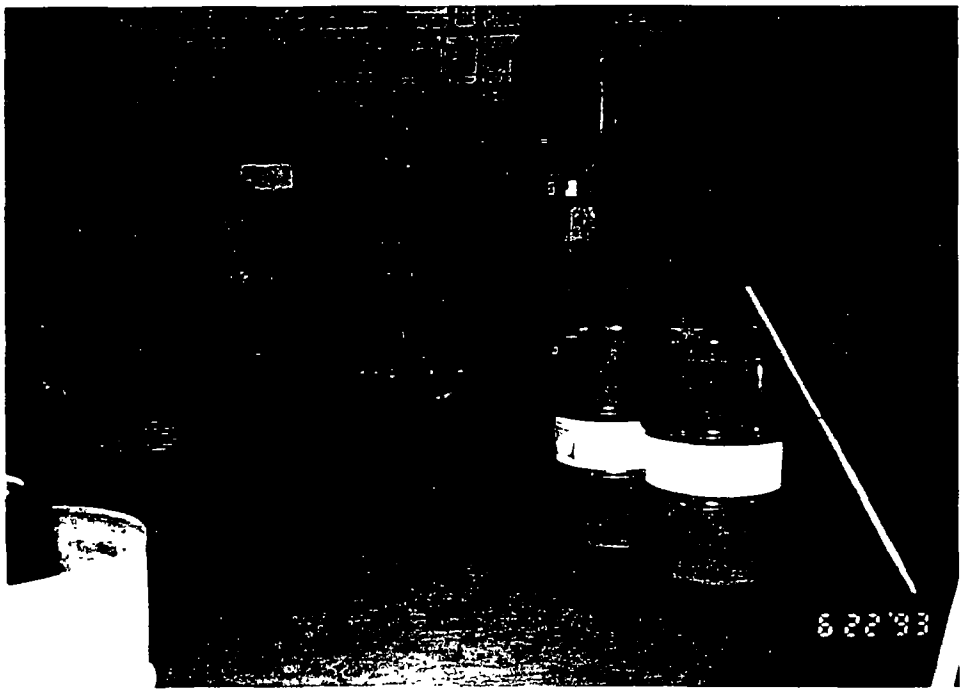
Photograph No. 1 Location: SWMUs 6 and 7
Orientation: West Date: 06/22/93
Description: Area of Transfer Facility (SWMU 7) and Former Waste Handling Area (SWMU 6); two trailers parked on ramp for 10-day drum storage



Photograph No. 2 Location: SWMU 5
Orientation: North Date: 06/22/93
Description: Former Drum Storage Area No. 3 for spent solvents

Photograph No. 3 Location: SWMU 8
Orientation: West Date: 06/22/93
Description: Former Waste Handling Area (SWMU 8) where still bottoms were loaded; also portion of contaminated area to east of facility

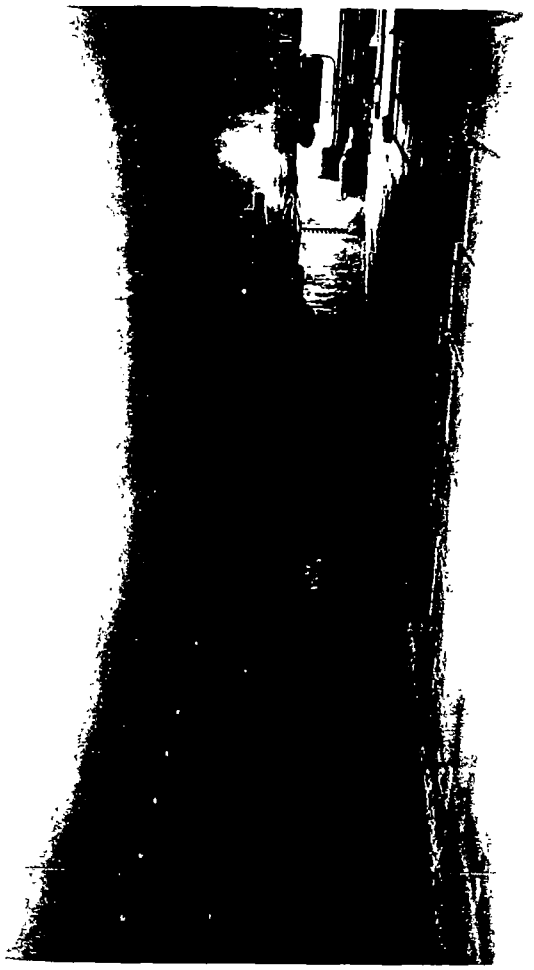
Photograph No. 4 Location: SWMU 8
Orientation: West Date: 06/22/93
Description: Former Waste Handling Area where piping from Former Still Bottom Storage Tanks (SWMU 2) piped up still bottoms to Former Waste Loading Area (SWMU 8)



Photograph No. 5 Location: SWMU 5
Orientation: North Date: 06/22/93
Description: Former Drum Storage Area No. 3 where spent solvent drums were stored from 1970 to 1991; product freon and Sphagsorb present in photograph

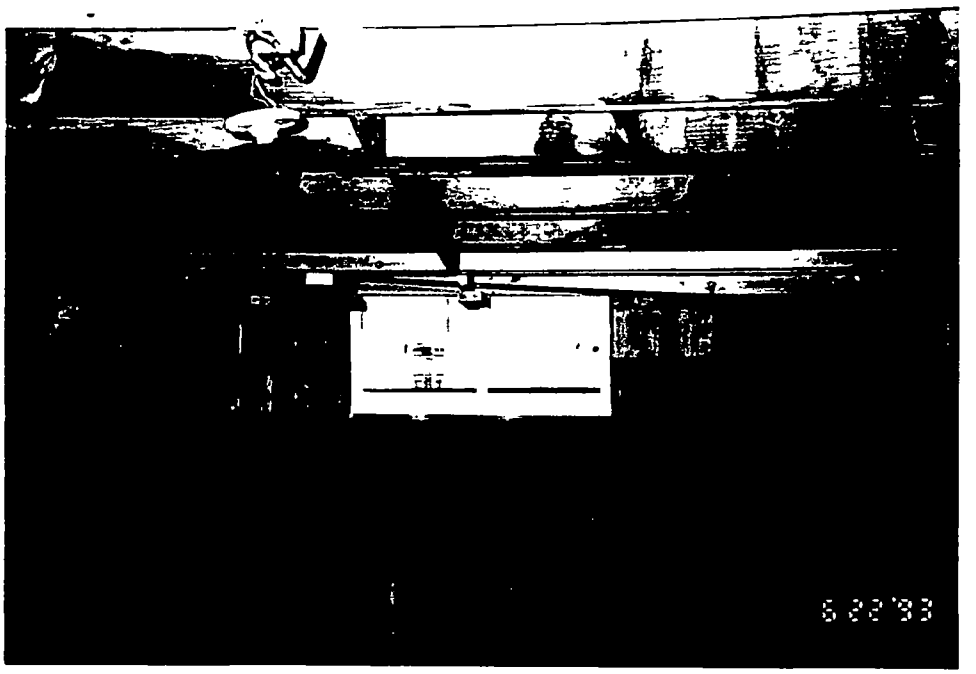
Photograph No. 6 Location: SWMU 1
Orientation: North Date: 06/22/93
Description: Former Waste Reclamation Area (SWMU 1); ramp runs to overhead door; Sphagsorb in background; canisters of product freon in foreground

Photograph No. 7
Orientation: East
Location: SWMU 4
Date: 06/22/93
Description: Former Drum Storage Area No. 2; presently undergoing floor replacement



Photograph No. 8
Location: SWMU 7
Orientation: West
Date: 06/22/93
Description: Close-up of closed sump in loading ramp of Transfer Facility (SWMU 7)

Photograph No. 9 Location: SWMU 3
Orientation: East Date: 06/22/93
Description: Former Drum Storage Area No. 1 (SWMU 3) in basement



Photograph No. 10 Location: SWMU 2
Orientation: East Date: 06/22/93
Description: Roof and east wall of basement; boarded up window is opening for pipes that pumped still bottoms out of Former Still Bottom Storage Tanks (SWMU 2)

Photograph No. 11 Location: SWMU 2
Orientation: North Date: 06/22/93
Description: Area of Former Still Bottom Storage Tanks

Photograph No. 12 Location: SWMU 9
Orientation: North Date: 06/22/93
Description: Former Drum Storage Area No. 4 (SWMU 9) in basement

Photograph No. 13 Location: SWMU 7
Orientation: East Date: 06/22/93
Description: Cross drain for storm water collection in foreground; two trailers of Transfer Facility (SWMU 7) in background

APPENDIX B

VISUAL SITE INSPECTION FIELD NOTES

(10 Sheets)

TUESDAY, JUNE 22, 1993 (69)
SUNNY, CLEAR, ≈ 80°F

1010 PRC - P. FLAHERTY AND STACEY DUBLEY ARRIVE AT DETREX SITE AND MEET WITH BILL MOORE - OF DETREX, AND DALE DEKRAKER, MDNR

- FACILITY STARTED ≈1969, NOT KNOWN WHEN IT WAS BUILT.
- ROOFING CO. PRIOR TO DETREX & FOOD DISTRIBUTOR BEFORE SONNE FELT

- GOLD SHIELD IS PRODUCT NAME GIVEN TO PRODUCT DETREX CHEM. INDUSTRIES, & DETREX CHEM. ~~OF PRODUCT~~ P.I.

- JIM HEYBURN RICHARD BOLT OWNERS

P. Flaherty 06/22/93

- WALLEY GRANT OWNED PRIOR

- 1969, DISTRIBUTOR OF ORGANIC SOLVENTS
(IN 1970, DETREX MANUFACTURED SOLVENTS)

- RECLAMATION DID NOT START IMMEDIATELY (DO NOT KNOW WHEN RECLAIMING STARTED)

- CLOSURE PLAN SUBMITTED 1 1/2 YRS. AGO (JAN. 4, 1991 FINAL REVISION)

- RECLAIMING STOPPED PRIOR TO 1991.

- F001 + F002 WASTES
1,1,1-TCA, TCE, METHYLENE CHLORIDE, PERC, FREON

P. Flaherty 06/22/93

- DETREX WOULD PICK UP WASTE IN DRUMS; STORE

- PRODUCT IN BY TANKER TRUCK, PUT INTO STORAGE TANKS (ON SITE).

- DID DO SOME BULK DISTRIB. OF PRODUCT; OTHERWISE DRUMMED.

- WASTE INTO DRUM STORAGE AREA - INTO PROCESS FEED TANKS (2) ~~1,500~~ 950 GAL. TANKS FEED TO (2) DISTILLATION UNITS

- AFTER DISTILLING, WENT TO BULK (1) TANK OUTSIDE

- 1900-GAL. TANK USED FOR STILL BOTTOMS

P. Flaherty 06/22/93

(72)

- WASTES WERE INITIALLY STORED FOR > 90 DAYS, UNTIL THEY COULD BE TREATED

- (2) 950 GAL. TANKS ON G. (FEED TANKS) LATER, 1900-GAL. TANK ADDED

- IF USED SOLVENT HAS LOW YIELD, MAY GO RT. INTO TANK, BASICALLY STILL BOTTOMS IN THEIR TANKS

- STILL BOTTOMS (95%) OF WASTE OFF SITE. OCCASIONALLY, PRODUCT OUT OF SPEC. OR LOW YIELD WASTE ALSO WENT AS WASTE.

- (3) STILL BOTTOM TANKS IN

P. Flaherty 06/22/93

(73)

BASEMENT, BELOW STILLS. EQUIPPED W/ PUMPS TO PUMP UP TO TANKER TRUCK FOR DISPOSAL

- WASTES WENT FOR THERMAL DESTRUCTION.

- ALL WASTES NOW TO PETROCHEM, IN DETROIT

ALSO, USED:

- IPA INDUSTRIAL FUEL REDUCED IN SOLVENTS, IN

- BOTH ARE FUEL BLENDING, & INCINERATION

- NOTHING IS LANDFILLED.

- TANKERS WERE CONTRACTORS

- NO KNOWLEDGE OF USING "WASTES"

P. Flaherty 06/22/93

AS FUEL.

- STOPPED RECLAIMING IN ~~x~~1989

- ALL EQUIP., STOR. TANKS, FEED TANKS WERE REMOVED, FLOOR TAKEN UP

- WOOD FLOOR ON 1ST LEVEL ALSO REMOVED, EVERYTHING WASHED.

- DRUMS IN BASEMENT NOW TANKS ALSO

- 2ND HALF (SOUTH) USED FOR 55 GAL. HAZ. WASTE

- WHOLE BASEMENT WAS USED FOR WASTE STORAGE

P. Flaherty 06/22/93

- 1ST FLOOR NORTH 1/2, MAIN WASTE AREA, EAST PORTION FOR STILLS - ~~SOUTH~~ SOUTH PORTION FOR (SEE BELOW)

-SOUTH 1/2 OF UPPER FLOOR FOR VIRGIN SOLVENTS - DALE IDENTIFIED ON PT. A DRAWING.

- TANKS & DRUMS ARE REMOVED, DRUMS RECLAIMED AT ANOTHER FACILITY, ALL CLEANED OUT

- NOW, ONLY PRODUCT DISTRIBUTION & 10-DAY TRANSFER FACILITY

- HAVE BEEN AUTHORIZED SINCE ABOUT 2 OR 3 YRS., AUTHORIZED BY MDNR TO DO SO

P. Flaherty 06/22/93

(76)

- Operated as 10-Day Transfer, while Closure Plan was being Approved.

- Awaiting Approval from MDNR for Closure. Should be by 3rd/Quarter of this year.

- Product in Now by Tanker, up to 2 Tanks, Pumped into Tanks.

- Formerly, Railcar was Used, had a Spill, Removed Soil, ≈ 1985 (MDNR Involved)

- Probably Stored Before Early 80s.

- Investigation in 1985 May Have been Prompted by Soil Staining

P. Flaherty 06/22/93

(77)

Seen During Pumping Out of Still Bottoms

- Other Contaminants Found Beyond TP Tracks (Not Mats. Used Here).

- Prod. Tanks in in Feb., 1989 (2) 7700 gals. Double-walled

- Took out (2) 10,000-gal. & 1 5,000-gals. - Same Conc. Dike As is Currently being Used. - Not Sure When They were Installed.

- No USTs - As far As Detex is Aware.

- Size of Property Leased is

P. Flaherty 06/22/93

(78)

IN Pt. B

- RELEASE TO CONTAMINANTS TO NE[illegible] TO SOUTH
  SITE TO SOUTH RECOVERED PNAs, BTEX, TCE; MDNR REP. DOES NOT KNOW STATUS OF SITUATION.
  -UST's NEXT DOOR HAVE BEEN REMOVED, & SOILS ALSO

- MAY BE CONTAMINATION UPGRADIENT OF SITE, NOT SURE WHERE.

- (Pts. WASTING OPERATIONS CONDUCTED AT THAT SITE, COULD CAUSE CONTAM.)

- PARKING LOT, WEST IS CITY (ACROSS THE STREET), CITY PROPERTY

P. Flaherty 06/22/93

(79)

IS TO ~~SOUT~~ P.F. EAST (PARKING LOT); NORTH P.F. ~~ABANDONED BLDG.~~ GEN. MERCHANDISE BLDG.

- 5 EMPLOYEES AT SITE, WORK 1 SHIFT, HOOKED UP TO CITY WATER SUPPLY, & ALSO EQUIPPED WITH STORM WATER RUNOFF

- NO NON-HAZ. WASTES ACT 164, & 136 TRANSPORTER'S PERMIT

- GRAND RIVER IS NEAREST SURFACE WATER BODY.

- NO OUTSIDE (FACILITY ALARM)

- CITY SUPPLIES WATER.

- INDUSTRIAL / COMMERCIAL AREA.

P. Flaherty 06/22/93

(80)

RESIDENCES NOT NEARBY.

- ≈ 1970, (2) 10,000-gal. & (1) 5,000-gal. product tanks installed.

- SUMP ON PROP MAY DISCHARGE TO POTW

- NO OTHER DRAINS TO CITY SYSTEM.

1310 BEGIN FACILITY TOUR.

- SAW 10-DAY TRANSFER AREA, (2) TRUCKS USED FOR 10-DAY TRANSFER OFFSITE

PHOTO #1 WEST - 10-DAY TRANSFER FACILITY.

P. Flaherty 06/22/93

(81)

CONCRETE BASE AT AREA, WASTES NOT STORED IN THIS AREA.

PHOTO #2 FORMER CSA NORTH - FENCING HAS BEEN REPLACED.

- EMPTY DRUMS STORED IN THIS AREA, PRODUCT CLEANING AGENT, PRODUCT MATERIAL IN DRUMS.

- RAILROAD HAS BEEN REMOVED, PROP. IN ≈ 1985.

- PHOTO #3 - WEST - AREA WHERE STILL BOTTOMS WERE FORMERLY PUMPED OUT FROM TANKS IN BASEMENT.

P. Flaherty 06/22/93

(82)

PHOTO #4 - SAME AS #3, WEST TRUCK WOULD BACK UP TO BLDG., HOOK UP TO CONNECTION UNDERNEATH BLDG.

- PARKING LOT WHERE RAIL SIDING WAS

- DRUMS WERE STORED IN SAME AREAS, OVERHEAD DOOR & RAMP POURED ON BASEMENT FOR 2ND AREA CONTAINMENT.

PHOTO #5 - FORMER DISTILLATION AREA - NORTH

PHOTO #6 - NORTH - FORMER DISTILLATION AREA & C.S.A

P. Flaherty 06/22/93

(83)

- SAW PRODUCT LOADING & UNLOADING AREA, METAL PLATE FLOOR, PRODUCT IS PIPED IN FROM OUTSIDE TANKS

PHOTO #7 - SOUTH - PRODUCT LOADING & UNLOADING AREA - (THIS FLOOR WAS NOT PART OF WHAT WAS REPLACED)

- PHOTO #8 - EAST
- FLOOR HAS NOT BEEN REPLACED, FORMER CSA ALONG THE EAST WALL - WOODEN FLOOR

- OUTSIDE, LOOKING AT BULK PRODUCT STORAGE TANKS

- ≈8' HIGH CONC. DIKING AROUND

P. Flaherty 06/22/93

(84)

TANKS, DRUMS DOWN TO ~~X~~ 9' HIGH

2 7,700-GAL. DWS TANKS

TANKS SITTING UP ON ~~X~~ 6" CONC. PAD

PHOTO #9 - LOOKING NORTH, 2 7,700-GAL. DWS TANKS USED FOR:

(1) 1,1,1 - TCA +

(2) TCE

PHOTO #10 - SAME AS ABOVE

PHOTO #11 - 2 PRODUCT TANKS, P.J. ~~EAST~~ WEST

PHOTO #12 - FORMER LOADING + UNLOADING AREA OF WASTE WEST, SUMP IN RAMP, MDNR REQUIRED CRACKS TO

P. Flaherty 04/14/93

(85)

BE SEALED, 1½ YRS. AGO, AND 3 YEARS AGO, CROSS DRAIN

PHOTO #13 - DUMPSTER USED FOR GENERAL DEBRIS - SHARED WITH MID-MICHIGAN SERVICES NEXT DOOR. - ~~EAST~~

- WENT INTO BASEMENT, VERY DARK, HARD TO SEE.

PHOTO # ~~#~~ 14 EAST, - FORMER DRUM STORAGE

PHOTO # 15 - EAST - WINDOW (BOARDED UP) WHERE PIPES CONNECTED TO STEEL BOTTOM TANKS - OBSERVED (W/ FLASHLIGHT)

P. Flaherty 04/22/93

(86) #16

FORMER LOCATIONS OF #3 TANKS USED TO STORE STILL BOTTOMS. ALSO, AREA USED AS FORMER CSA.

PHOTO #17 - BASEMENT CSA, (BETTER LIGHTED) -

1410 BACK UPSTAIRS TO WRAP-UP THE MEETING.

- SOLVENTS AND ENVIRONMENTAL SERVICE DIVISION (THIS FACILITY) NOT GOLD SHIELD.

- PHOTO #18 - EAST - DRAIN FOR STORM WATER COLLECTION

1425 PRC OFF SITE

P. Flaherty 04/22/93